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from the Chief

Every year, we in Navy medicine and dentistry cite important anniversaries commemorating the establishment of integral components of the Navy Medical Department: March 3, 1871 — the Medical Corps; May 13, 1908 — the Nurse Corps; June 17, 1898 — the Hospital Corps; August 4, 1947 — the Medical Service Corps; August 22, 1912 — the Dental Corps; and finally August 31, 1842 — the date on which the Bureau of Medicine and Surgery was established by Act of Congress.

Separately, each date represents a historical milestone in the steady development and growth of the Navy Medical Department. Collectively, however, these milestones represent a composite of events which has, in well over a century, nurtured Navy medicine and dentistry into a viable health care delivery system.

The hallmark of our system has been its provision of the right care at the right place at the right time, and through the years the most consistently important element of our success has been *teamwork* — people from all walks of life, in peace and war, working together in diverse roles, under varied conditions, toward one common objective — quality health care. Few organizations, so rich in our nation's history and traditions, hold such pride in accomplishment achieved through the coordinated contributions of so many.

If "teamwork" has been the byword of our past, "partnerships" will be the watchword of our future. The exigencies generated by the All Volunteer Force, and those expected from the impending National Health Insurance era demand even closer amalgamation of Navy Medical Department forces. *The physician and dentist will remain the principle providers of professional care and counsel.* However, members of the Hospital, Nurse, and Medical Service Corps, and our civilian personnel who, heretofore, functioned principally as team members will take on a "partnership" role by assuming a broader scope of responsibilities in the provision of quality health care. I am convinced, based on all indicators available today, that our success for renewal as a vital arm of the Naval Forces, will depend heavily upon our ability to function effectively and harmoniously as a truly corporate body of professionals and paraprofessionals.

The newest candidates for this "partnership" are the Physician Assistant (PA) and the Nurse Practitioner (NP). These specially trained graduates will complement our physicians so that they, the physicians, may extend their expertise over a wider range. Our PAs and NPs will especially assume the functions and responsibilities of front line patient care. They will become "partners" of our physicians and dentists in hospital outpatient departments, and medical-dental clinics. Our elite and long respected independent duty corpsmen will be even better trained tomorrow. Although separated by miles of ocean from the nearest medical center they, too, will be assigned physician "partners" only split seconds distant via electronic communications. A whole new generation of communication network, video as well as audio, for use in remote health-care delivery is being explored by NASA and HEW. The Navy Electronic Laboratory Center, San Diego, in conjunction with this Bureau will soon test the practicality and effectiveness of remote medical diagnosis and instruction for naval vessels. A prototype Remote Medical Diagnosis system will soon be installed aboard ship for several months using high frequency communication link with a naval hospital. Ultimately, the use of communication via satellite for remote consultation will also be exploited. My purpose here is not to discuss these exciting developments, (they will be the subject of future papers); rather it is to emphasize that in the future our independent duty corpsman will be more than a remote team member — he will be a full-fledged partner of one of our medical centers and its specialists, with whom he can share his heavy responsibility.

Our program for placing Medical Service Corps officers in staff and command billets signifies the beginning of a full partnership role for the Medical Service Corps. Always a loyal and effective team member, the MSC officer is now assuming even greater executive management responsibilities. In conjunction with the PA and NP programs this new role of the MSC will be extremely valuable to Navy medicine and dentistry, particularly as military medicine and the nation at large progress through the "shakedown" phase of the All Volunteer Force environment and the National Health Insurance era.

Our Civil Service employees, long important members of the Navy health care team, also can expect to join in the partnership. They, too, will be asked to assume more responsibilities so that physicians and dentists may extend their scope of professional involvement in the delivery of patient care.

Who can deny that the passage from team work to partnership constitutes yet another milestone worthy of anniversary recognition. Although a concept whose time has come, its implementation, none the less places Navy medicine in the vanguard of modern health care organization.

Every member of the Navy Medical Department is expected to lend positive creative effort toward the consummation of such partnership. Its evaluation will be guided by well defined goals and objectives.

The course is set and the tasks ahead are too critical for doubt and recrimination. Let us give to each other the opportunity for full exploitation of individual potential, and enjoy together the satisfaction which comes from shared excellence in patient care, education, and research.





DEPARTMENT OF THE NAVY
ASSISTANT CHIEF OF THE BUREAU OF MEDICINE AND SURGERY FOR DENTISTRY
AND
CHIEF OF THE DENTAL DIVISION
WASHINGTON, D.C. 20372

SIXTY-SECOND ANNIVERSARY OF THE

NAVY DENTAL CORPS

22 August 1974

On the occasion of our Sixty-second Anniversary, I take this opportunity to express my heartfelt gratitude for the spirit of accomplishment and dedication to the provision of quality dental health care that, as in the past, pervades our Corps.

Your response to efforts to establish meaningful dialogue at all echelons is sincerely appreciated.

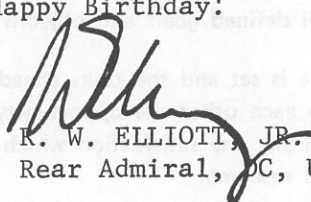
As we go forward in our efforts to provide the maximum amount of quality care, emphasis will be placed upon the enhancement of professional fulfillment as well as cost effectiveness.

The Dental Division pledges its support and is dedicated in every effort to provide the personnel and material resources that you must have in order to reach these goals in this period of imminent change and new direction that is evident in all areas of health care delivery.

I am especially delighted with the many fine compliments paid to you by various commands and individuals. You are to be congratulated on your professionalism as naval dental officers.

Best wishes to you all and Happy Birthday!




R. W. ELLIOTT, JR.
Rear Admiral, DC, USN



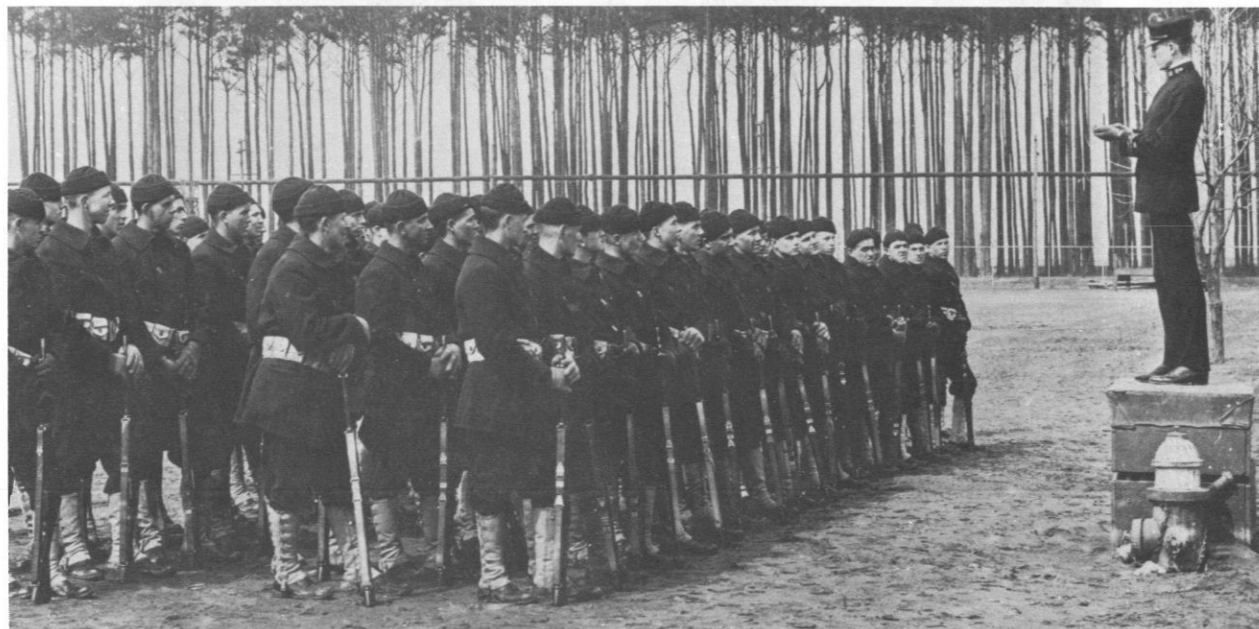
The Navy Dental Corps: Proud Heritage and Service

In April of 1873, Dr. Thomas O. Walton switched on a single incandescent light bulb at the United States Naval Academy and began providing a unique service, the first dentist appointed to serve as an officer in the Navy. Prior to that time, a limited form of dentistry was practiced by medical officers. (Even by 1886 the *Instructions for Medical Officers of the U.S. Navy* described the contents of a dental case: eight tooth extraction forceps, two elevators, and one gum lancet.) Honorably discharged in 1879, Dr. Walton was reappointed in 1880 to serve as a civilian contract dentist at the Academy, a position he held until 1890 when he was succeeded by Dr. Richard Grady.

In 1908, Dr. Grady presented a paper to the Northeastern Dental Association entitled, "The Dentist in the

United States Navy: An Account of the Efforts to Secure a Dental Corps." In this paper, Dr. Grady succinctly pleaded the case for naval dentistry:

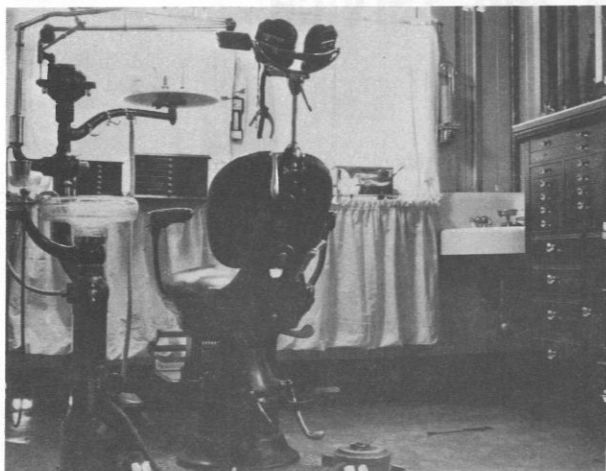
Government ships are provided with dental cases, each containing a set of forceps, elevators, evacuators, engine burs, plastic-filling instruments, and a high grade gutta-percha. These are used by the surgeons and hospital stewards, some of whom have taken courses in dentistry. Practically there is no room on ships for dental work, for chairs, cabinet, engine, etc. If located in or near the sick bay, as the hospital is termed on a man-of-war, the dentist could work on bright days only.



ALL EARS.—Preventive dentistry has long been a concern of the Navy Dental Corps. Back in 1918, recruits at Hampton Roads, Va., received daily lectures on oral hygiene and prevention of dental disease.

The life of a sailor in our early history was particularly harsh and demanding when dental problems conspired to disrupt comfort, health and equanimity.

Finally, in its second session, the 62nd Congress passed an act which established the Navy Dental Corps; the act was signed into law by President Taft on 22 Aug 1912. This law authorized the Secretary of the Navy to appoint a cadre of not more than 30, acting, assistant dental surgeons as an integral part of the

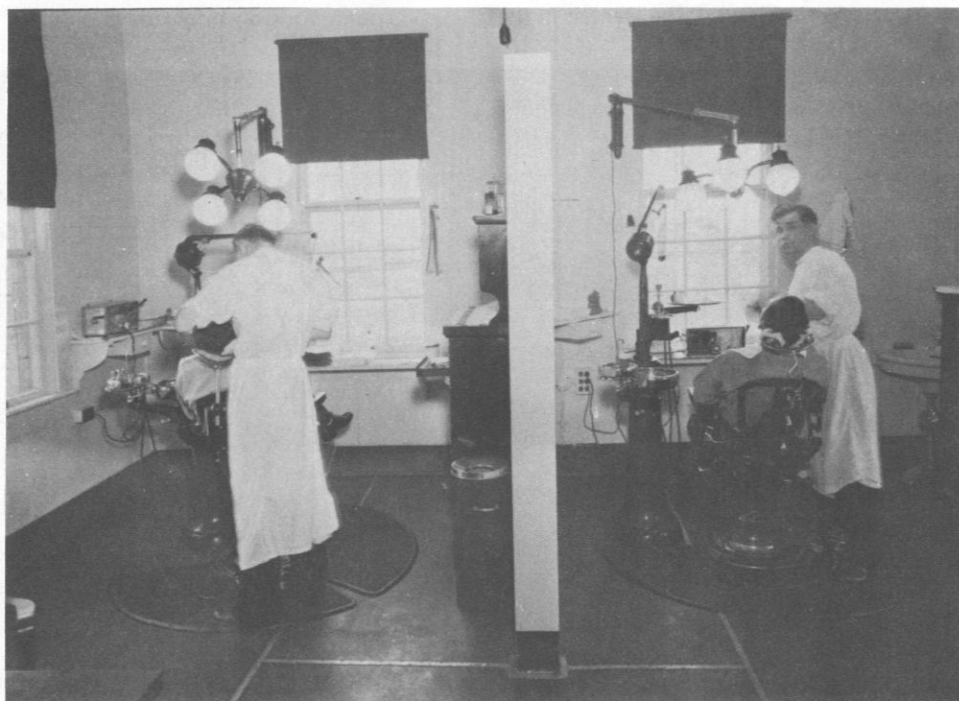


PATIENTS WANTED.—In 1918, this dental operating room was used to provide dental care to Navy personnel assigned to the Navy Yard at Mare Island, Calif.

Medical Department. The total strength of the Dental Corps was not to exceed the proportion of one dentist to each 1,000 members of the authorized enlisted strength of the Navy and Marine Corps. That same Congress, with an ever-watchful eye on the national budget, appropriated a sum not to exceed \$15,000 for dental equipment, materiel, and all other contingent expenses. From that very modest beginning the Dental Corps began to emerge, developing a fine record of devotion to duty and an undisputed reputation for professional competence and accomplishment.

In 1938, the dental officer ratio was improved to admit one dentist for each 500 personnel; additional billets increased the peacetime allowance to 234 officers. During World War II the number of dental officers on active duty rose above 7,000. Until this time, the Navy had been very selective in accepting enlistees, rejecting many applicants because of poor dental health. In the face of unprecedented manpower requirements, however, a change in selection policy became necessary. Dental standards were lowered — from a requirement of 20 sound serviceable teeth, to one of healthy or restorable jaws. Since that time, the Dental Corps has kept pace with, and responded with resilience to the impacts of increased treatment needs and rapid turnover of patient population.

The primary function of the Navy Dental Corps is to provide active-duty Navy and Marine Corps



THE 30'S LOOK.—By 1934, Navy dental operating rooms had acquired a modern look. These rooms at Naval Air Station, Pensacola, Fla., were rarely empty.

personnel with high-quality dental care, preventing and/or remedying diseases, disabilities and injuries of the teeth, jaws, and related structures, which might directly or indirectly interfere with the performance of military duties. In addition to active duty personnel, other authorized and eligible beneficiaries include dependents (under certain circumstances) and retirees from military service, who may be provided care on a space-available basis. Under the leadership of RADM R.W. Elliott, Jr., DC, USN, today's Dental Corps achieves its mission by fulfilling three major commitments: (1) providing the greatest possible amounts of high-quality dental care, (2) assuring dental officers of stimulating and rewarding professional experiences, and (3) making the most effective use of all resources.

Today, on its 62nd anniversary, the Navy Dental Corps numbers approximately 1,750 dental officers and 4,100 enlisted dental technicians. Navy dental officers serve in 309 dental installations in various parts of the world, including 82 dental facilities in ships. Nearly 300 Navy dental officers serve with the Marine Corps, 145 of whom serve in the Fleet Marine Force. Prosthetic treatment is available in 176 activities, including 41 ships. An inactive Reserve organization of over 2,000 experienced officers, many with assigned mobilization billets, further supports the Naval peacetime establishment.

On 1 July 1970 there were only 77 regular Navy lieutenants in the Dental Corps. By 31 Dec 1973 that

number had reached 200. At the same time there were 54 Reserve dental officers awaiting Senate confirmation of their appointments to the regular Navy. This favorable trend reflects a variety of incentives which enhance the attractiveness of a naval career. Nearly 500 dental students throughout the country participate in one of two available Navy scholarship programs. Continuing education, and specialty-training programs sponsored by the Navy Dental Corps, provide many opportunities

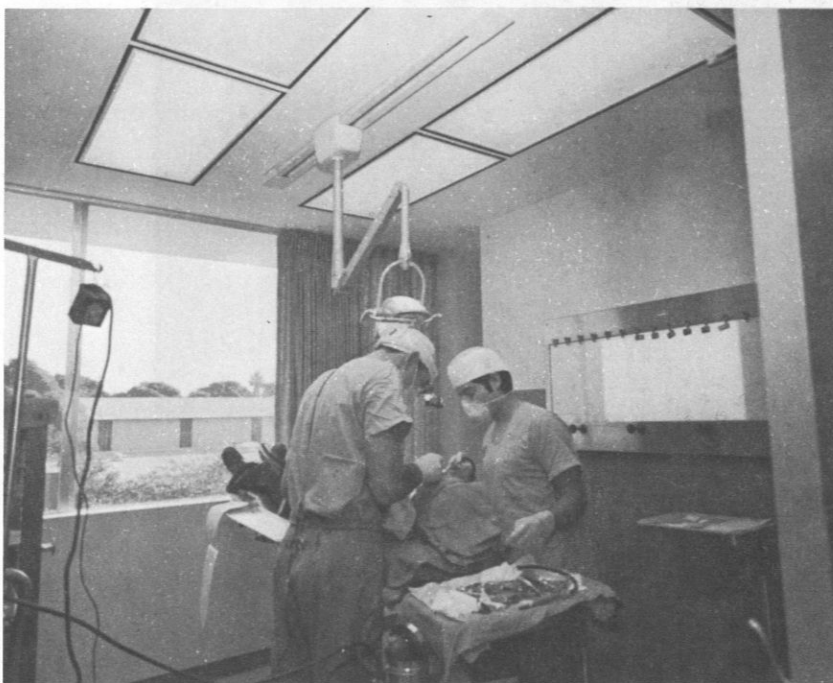
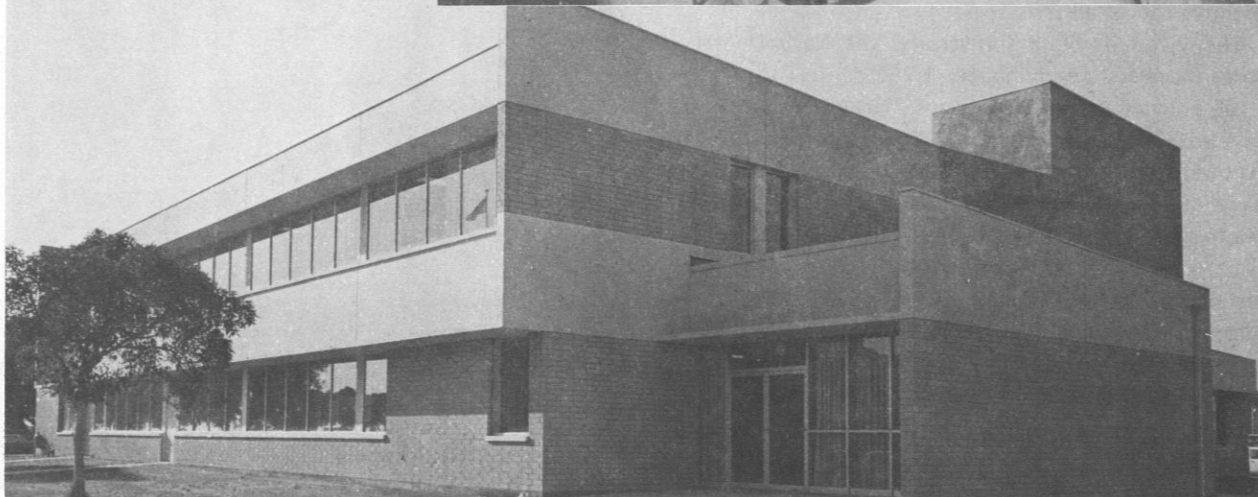
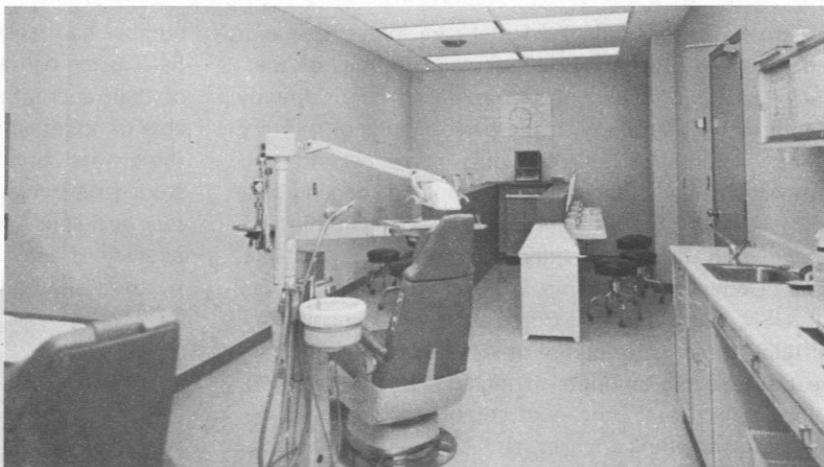


CARE AT SEA, 1945.—In 1945, this dental operating room in the USS *Wyoming* was the scene of dental care on the high seas.



IN THE LIMELIGHT.—Bright and shiny, the Naval Dental Clinic at Marine Corps Base, Camp Pendleton, Calif., shown here in 1972, is typical of new dental facilities being constructed.

BATTLEGROUND.—The battle against tooth decay takes place daily in a typical sparkling clean preventive dentistry room at Naval Dental Clinic, Naval Base Los Angeles-Long Beach, Calif.



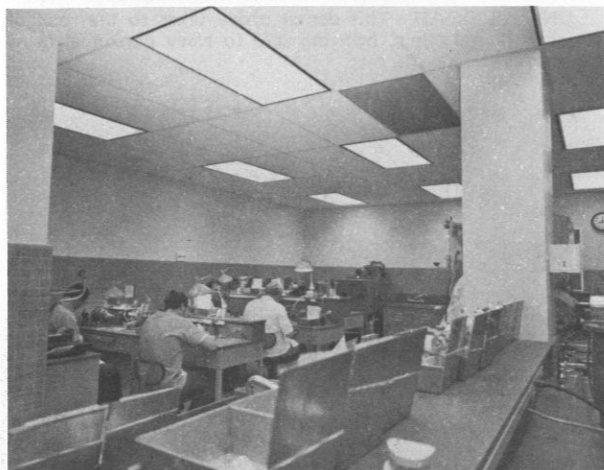
ROOM WITH A VIEW.—The oral surgery office of Naval Dental Clinic, Naval Base Los Angeles-Long Beach, Calif., offers patients a room with a view. Not everyone can enjoy this bonus, however.

for study and professional advancement. New construction and refurbishing of dental facilities permits consistent improvement and broadening of training, clinical treatment, and research programs. The development and implementation of a comprehensive preventive-dentistry program have transfused additional dimensions into the Navy dental health-care-delivery system.

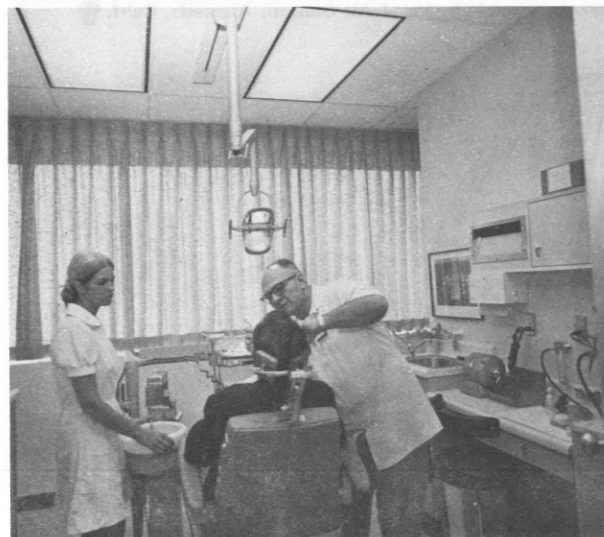
To improve management effectiveness and to achieve more efficient use of personnel and materiel, the Navy Dental Corps began to establish naval regional dental centers in July 1973. The establishment of dental centers under one command permits immediate response

to the needs of the specific populations and activities which they serve; at the same time, dental centers serve to eliminate layering and the reduplication of administrative and fiscal burdens at separate commands where dental departments are situated.

Innovative, resourceful, idealistic, enthusiastic, and progressive — the Navy Dental Corps is busy meeting the complex challenges involved in protecting the health and physical fitness of the Navy family. Sixty-two years is a splendid age: young enough to be energetic and potent, mature enough to know what is required, and old enough to be able to accomplish it. Happy Birthday, Navy Dental Corps.



SPECIALISTS AT WORK.—Dental technicians bend to their work in the main prosthetic laboratory at Naval Dental Clinic, Naval Base Los Angeles-Long Beach, Calif.



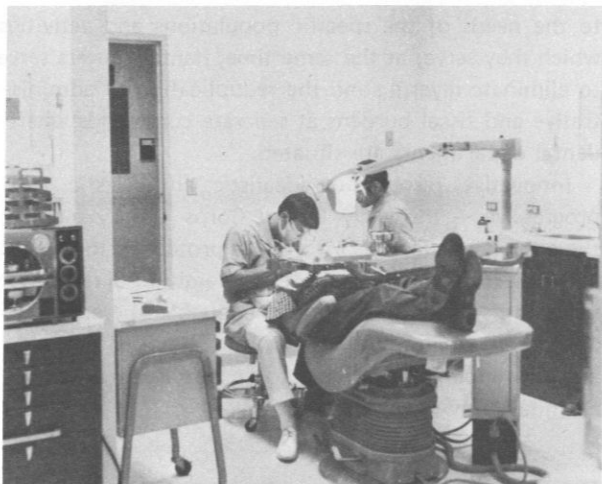
UP-TO-THE-MINUTE.—At Naval Dental Clinic, Naval Base Los Angeles-Long Beach, Calif., patients in the prosthetic office have the advantage of the most modern dental equipment and techniques.



WELCOME TO THE MARINES.—New recruits wait for instructions in the self-preparation preventive dentistry room at the Marine Corps Recruit Depot Dental Clinic, San Diego, Calif. (Photo by SGT R.E. Sanchez, USMC).



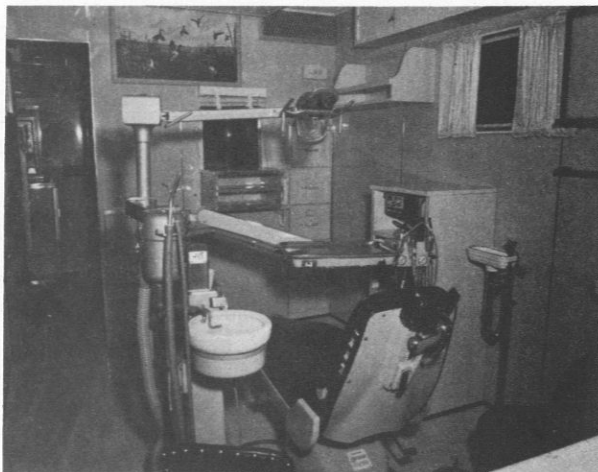
CLEAN-UP TIME.—A modern dental office and a friendly technician make dental care a pleasure at the Marine Corps Recruit Depot, San Diego, Calif. (Photo by SGT R.E. Sanchez, USMC).



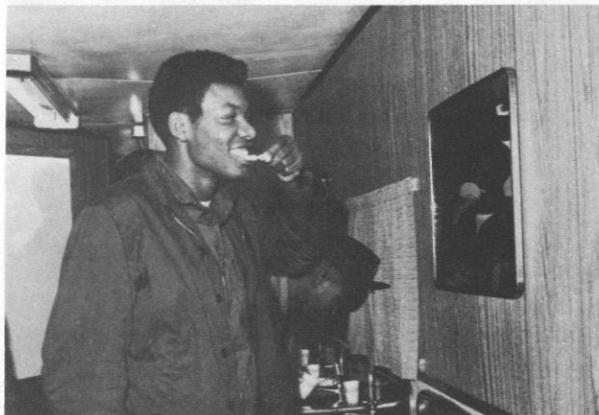
MODERN MARVELS.—The ultimate in comfort is provided in typical dental office at the Marine Corps Recruit Depot Dental Clinic in San Diego, Calif. (Photo by CPL J.M. Warneke, USMC).



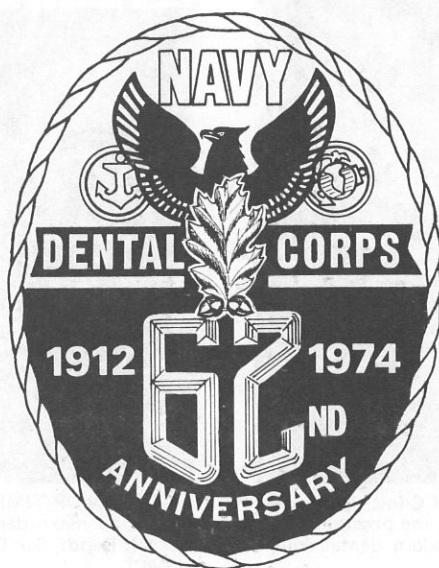
CARE AT SEA, 1973.—Today's sea-going dental clinic bears little resemblance to its predecessors. This attractive and efficient dental office is in the USS *Jason* (AR-8).



ON THE ROAD.—This dental office takes to the road in a mobile dental clinic, bringing care to Navy personnel in remote areas.



CHECK THAT SMILE.—Top-notch dental care means healthy teeth and great smiles. These Navy men review good oral hygiene practices in the mobile self-preparation preventive dentistry clinic at Naval Air Station, Alameda, Calif.



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LCDR Charles W. Creasser, MC, USNR
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CDR Donald K. Roeder, MC, USN

Dental Corps Sponsors Management Seminar

New captains and captain selectees of the Navy Dental Corps recently participated in a management seminar held in Washington, D.C., 13-17 May. The seminar had a dual purpose:

- To provide instruction in basic administrative tasks for officers who had previously specialized in clinical dentistry



KEYNOTE SPEAKER.—RADM R.W. Elliott, Jr., DC, USN, assistant chief for dentistry and chief of the Dental Division, BUMED, discusses managerial responsibilities with dental captains and captain selectees at a seminar held in Washington, D.C., 13-17 May.



THE MANAGEMENT MEN.—Key members of the Dental Division staff explain the BUMED role in managing Navy dental health-care delivery. Discussion participants include (left to right): CAPT R.G. Granger, DC, USN; CAPT R.H. Howard, DC, USN; RADM R.W. Elliott, Jr., DC, USN; CAPT G.B. Crossmire, DC, USN; CAPT F.R. Ruliffson, DC, USN; and CAPT H.D. Tow, Jr., DC, USN.



WORLD OF MANAGEMENT.—LCDR B.G. Oglesby, MSC, USN discusses the world of management with dental officers attending the recent seminar. All lectures at the seminar were oriented toward understanding administrative responsibilities and improving management practices.

- To acquaint the participants with new patterns of management that reflect the latest insight provided by behavioral scientists

The first session was held at the Bureau of Medicine and Surgery, where RADM Robert W. Elliott, Jr., DC, USN, assistant chief for dentistry and chief of the Dental Division, welcomed the 75 participants. In his keynote address, RADM Elliott stressed the increased responsibilities of dental managers in meeting the major objectives of the Dental Corps. Subsequent briefings by key members of the Dental Division staff gave the group a clear picture of the Bureau's role in managing Navy dental health-care delivery.

On the second day, the seminar moved to the Naval Graduate Dental School, National Naval Medical Center, Bethesda, Md. The remainder of the sessions provided an in-depth survey of personnel, financial, and patient management aspects of the Navy dental-care-delivery system; all discussions were oriented toward understanding administrative responsibilities and improving management practices.

Guest speaker VADM Donald L. Custis, MC, USN,

the Navy Surgeon General, emphasized the need for senior officers to provide responsible leadership and management. The Surgeon General also commented on current attitudes toward health-care delivery, explored the effects of inflation on military facilities, and discussed problems related to the all-volunteer-force concept.

RADM George D. Selfridge, DC, USN, commanding officer of the Naval Graduate Dental School, addressed the seminar twice. He first discussed management-control devices for determining the costs of command programs, and for reporting cost information in understandable, usable terms. At a later session, he described recent developments in dental care in the Norfolk, Va., area, where regionalization has contributed to improved administration (including increased use of dental specialists), has facilitated the distribution of resources, and has generated greater fiscal and supply control.

Following a panel discussion on performance evaluation and fitness reports, CAPT Frank R. Ruliffson, DC, USN and LCDR John D. Galbreath, MSC, USN acquainted the attendees with practical aspects of dental-facility planning. Head of the Dental Technician School at the San Diego Naval Dental Center, CAPT Harry C. Pebley, DC, USN then described the task-



REGIONALIZATION FOLLOW-UP.—New developments in dental care following the establishment of regionalization at Norfolk, Va., are described by RADM G.D. Selfridge, DC, USN, commanding officer of the Naval Graduate Dental School, Bethesda, Md.



PANEL DISCUSSION.—Participating in a panel discussion on performance evaluations and fitness reports are (left to right): CWO4 A.G. Hayes, USN; CAPT W.B. Shreve, Jr., DC USN; CAPT G.B. Crossmire, DC, USN; and CAPT J.B. Holmes, DC, USN.

based curriculum, designed to motivate dental technicians to learn new skills while doing their job and build morale in the process.

Throughout the seminar, a team of speakers from

the Naval School of Health Care Administration discussed various aspects of management, including planning and control functions, organization theory, personnel management in the Federal Service, motivation, and productivity. One officer attending the seminar voiced the enthusiasm of the entire group for this part of the program when he said, "The staff officers from the School gave us a great amount of information condensed to a nutshell. They left us with a desire to know more about the subjects."

This management seminar was held exclusively for dental officers because of the unusually large number who were advanced to the rank of captain this year. A similar seminar was held for medical officers advanced to that rank. In past years, dental officers and medical officers have attended a joint management seminar. — PAO, NNMC, Bethesda, Md. 🇺🇸

ENLISTMENT AGE AMENDED

The President has signed into law a bill establishing the same age requirements for men and women who enlist in the Armed Forces. Both men and women may now enlist at age 17 years with parental consent, and at age 18 years without parental consent. Previously, only men were allowed to join at 17 with parental consent; women could enlist only at age 18, and needed parental consent until they were 21. — CHINFO Newsgram, 22-74. 🇺🇸

Evaluation of Two Different Approaches to Plaque-Control Instruction

By CAPT Richard C. Edwards, DC, USN*

and

LCDR William W. Sullivan, DC, USN**

Specific, concise methods of preventing dental disease are the primary goal of plaque-control programs. To the reader of current literature on the subject, it is immediately apparent that there are as many approaches to plaque-control instruction as there are authors.

Although the majority of American dentists participating in a survey¹ report that they provide five separate instructional periods in their plaque-control program, there is no research data to document the efficacy of this approach.

There is a dearth of documented research² evaluating various approaches to plaque-control instruction. Recent reports³⁻⁶ have established the positive relationship of plaque control with the prevention and reduction of periodontal disease, either as the sole therapy^{3,4} or in conjunction with periodic oral prophylaxis.^{5,6}

Lightner, et al.,⁵ found that two preventive appointments, approximately one week apart, would be practical and effective in treating large populations. This timing approach is essentially the same as that used presently, and during previous studies^{3,7,8} conducted

at the U.S. Naval Academy, Plaque Control Orientation Center (PCOC).

Documentation of a comparison study between the present approach to plaque-control instruction currently practiced at the PCOC, and that practiced by the majority of American dentists (five consecutive days) has not been reported in the literature.

This study was designed to evaluate two different plaque-control programs. The present method of providing personal plaque-control instruction in the PCOC⁹ was compared to a program of instruction that is favored by a majority of American dentists.¹

PROCEDURE

Study Groups

One hundred and eight midshipmen with clinically discernible gingivitis were selected to participate in this study. These men were scheduled for plaque-control instruction, and were randomly assigned to one of three experimental groups of 36 men each.

All subjects were issued the same plaque-control devices prior to the study period: included were an electric reciprocal toothbrush,* a dispenser of dental tape,** and a container filled with disclosing tablets.*** No instruction or advice for using these devices was given at the time of issue.

*Director, Plaque Control Orientation Center, Dental Department, U.S. Naval Academy, Annapolis, Maryland 21402.

**Medical Department, Naval Support Force Antarctica, FPO New York 09501.

The opinions or assertions contained in the above paper are those of the authors and are not to be construed as official, or necessarily reflecting the views of the Navy Department or the naval service at large.

References to commercially available products do not imply endorsement of, or preference for these items over similar products on the market.

*General Electric, TB-4a; General Electric, Asheboro, N.C. 27203

**Dentotape; Johnson & Johnson, New Brunswick, N.J. 08903

***Butler Red Cote; John O. Butler Co., Chicago, Ill. 60611

Group A received plaque-control instruction at the Plaque Control Orientation Center, as has been previously described.^{9,10} The first 45-minute session devoted to education and self-participation was followed, one week later, by a second 30-minute evaluation and reinforcement session.

Group B attended, essentially, the same initial educational and self-participation session in the PCOC as did Group A. Group B then returned to the Center on the following four successive days, for further instruction in personal plaque-control procedures. The same staff personnel were involved in the instructional phase of Groups A and B, and were unaware that a study was being conducted.

Group C served as a control. Group C subjects were not appointed in the PCOC, received no instruction in personal plaque control, and were not advised in the use of cleansing devices.

Experimental Phases

This investigation was carried out in three phases: Phase I was the instructional, or treatment phase; Phase II was the discontinuance of all oral cleansing, or the re-creation of gingivitis phase; and Phase III was the reinstitution of personal plaque-control procedures, or autotherapy phase.

Groups A and B participated in two different approaches toward plaque-control instruction during Phase I. Both groups were instructed in personal plaque-control procedures, and were educated and motivated toward dental health. During this phase of the study, Group C was not in contact with any personnel from the dental department.

During Phase II all subjects (Groups A, B, and C) were instructed to discontinue all plaque-control procedures after their second examination. On the assumption that Group C knew nothing of plaque or its control, they were simply told to "stop brushing your teeth and do not use anything to clean your mouth." If any participant questioned this directive to discontinue cleansing, the examiner was instructed to inform the subject that, "We are doing a study to see how dirty the teeth will become in three weeks without cleaning." The intention of Phase II was to re-create inflammatory changes in those individuals who had practiced plaque control during Phase I.

Phase III commenced after the third examination. Group A and B subjects were directed to reinstitute personal plaque-control procedures which they had learned during Phase I. It was assumed that Group C members did not know about plaque, and they were instructed to clean their teeth in the usual manner.

Phases II and III were designed to facilitate evaluation of the motivational differences between Group A and Group B, reflecting different instructional approaches implemented in Phase I.

Examinations

Subjects were examined by the same examiner, who was unaware of the group assignment given to each participant. There were four examinations: the initial exam, an exam conducted three weeks following plaque-control instruction (prior to Phase II), an exam conducted three weeks after all plaque control procedures had been discontinued (prior to Phase III), and the exam conducted two weeks after reinstitution of plaque-control procedures (following Phase III).

All subjects were scored in the extent of plaque and periodontal disease, using four indices at each examination.

Scoring Procedures

The plaque assessment was accomplished by utilizing a modification of the Navy Plaque Index⁸ (PI), with a fluorescent plaque-disclosant system. The plaque was stained by rinsing with a fluorescing disclosant* for 15 seconds, and was illuminated with a special penlite.** The scoring for extent of plaque was modified by assigning a score of 1 for each area where plaque was present, in contact with the gingiva at the mesial, distal, and gingival scoring areas. Such modification tended to eliminate examiner subjectivity, and reflected the degree of desired behavioral change more accurately than the previous scoring systems. This procedure does not attempt to quantitate the amount of plaque, but rather it ascertains the presence or absence of plaque in a given area as evidence of cleansing or lack of cleansing, an indicator of patient behavior.

The presence of periodontal disease was determined using a modified Gingivae-Gingival Depth Index (GI and GDI)⁸ to score the gingival health and pocket depth. Any change from normal was assigned a score of 1 for the appropriate gingival scoring area; similarly, a pocket score of 1 was assigned for any sulcus depth greater than 3mm. If there was no gingival abnormality or if the sulcus depth was 3mm or less, a score of 0 was recorded for each respective scoring area. This scoring system was used to measure the presence or absence of disease, rather than severity.

*Plak-lite disclosant; International Pharmaceutical Corp., Warrington, Pa. 18976.

**Flashlite Eye Exam, Spot Beam, Disposable; Concept Inc., St Petersburg, Fla. 33732.

TABLE I
MEAN GINGIVAL INDEX SCORES*

STUDY GROUP	NUMBER OF SUBJECTS	E X A M I N A T I O N S			
		INITIAL	SECOND**	THIRD†	FOURTH††
A	21	13.43±3.55	4.76±3.49	14.62±3.40	7.57±3.46
B	24	12.96±4.75	5.38±4.73	16.37±3.64	5.17±4.24
C (Control)	23	12.09±4.82	12.87±5.30	14.35±3.72	11.91±4.27

*Means (± standard deviation) within the same bracket are not statistically different ($P > 0.05$).

**2nd exam conducted 3 weeks following plaque-control instruction for Groups A and B during Phase I.

†3rd exam conducted 3 weeks after oral cleansing was discontinued during Phase II.

††4th exam conducted 2 weeks after reinstitution of plaque control during Phase III.

TABLE II
MEAN GINGIVAL DEPTH INDEX SCORES*

STUDY GROUP	NUMBER OF SUBJECTS	E X A M I N A T I O N S †			
		INITIAL	SECOND	THIRD	FOURTH
A	21	10.09±3.69	5.81±3.43	9.14±2.59	5.19±3.08
B	24	10.67±3.79	5.79±2.42	9.83±3.59	4.58±3.67
C	23	9.69±3.08	9.13±3.48	9.69±4.13	8.00±2.81

*Means (± standard deviation) within the same bracket are not statistically different ($P > 0.05$).

†Examinations conducted as shown by legend in Table I.

A Bleeding Index (BI)⁸ was devised to better assess the interproximal health of the teeth that were used as a basis for scoring the other indices. This was simply a dichotomous evaluation of the mesial and distal interproximal surface of each tooth being scored. If bleeding occurred when dental tape was guided into the appropriate gingival sulcus by the examiner, a score of 1 was recorded for that proximal tooth surface. A score of 0 was recorded if no bleeding occurred. From the standpoint of both the patient and the investigator, this index has proven⁸ to be an accurate objective indicator of gingival health in plaque-control-program evaluation.

RESULTS

There was a total loss of 40 participants during this investigation. Nineteen subjects were separated from the Academy for aptitude or academic reasons prior to the completion of the study. An additional 21

participants were not included because they refused to cooperate in Phase II. It had not been anticipated that so many subjects would refuse to discontinue all oral-cleansing procedures. Parenthetically, it had been assumed that all of the participants would willingly cooperate during Phase II which coincided in time with the first-semester academic examination period. The data presented represent 68 subjects with a mean age of 18 years, who completed the three experimental phases and all examinations. The initial mean scores of this group were not statistically different from those recorded for the original group. Analysis of variance procedures was used in the statistical analysis of the data.

Table I reveals the initial mean Gingival Index scores, and the mean scores achieved after each experimental phase. Groups A and B showed improvement three weeks following plaque-control instruction (2nd exam). During Phase II, gingival inflammation returned and mean gingival scores increased (3rd exam), demonstrating a worse clinical status than had been observed initially. Reinstitution of personal plaque control

during Phase III again brought about improvement in the gingival health (4th exam). There was no significant difference observed between Group A and Group B at the four examinations. The control group (Group C) was not significantly different from the study groups initially, and failed to change significantly during the study period.

The findings presented in Table II and Table III show the mean Gingival Depth Index scores and the mean Bleeding Index scores, respectively; the results parallel those reported for the Gingival Index scores (Table I). There was no significant difference between the study groups; both improved after practicing plaque control as indicated by scores achieved on the 2nd and 4th examinations, and they were judged significantly better than the control group.

The mean Plaque Index scores during the study period are recorded in Table IV. The control group showed no significant change throughout the study period. It was interesting to find that the study groups, although not different from each other, accumulated

significantly more plaque during Phase II (Note score on 3rd examination) than did the control group.

The data relative to the mean scores is summarized graphically in Figures 1, 2, 3, and 4.

DISCUSSION

Sixty-eight midshipmen completed all phases of this study in which 108 midshipmen had originally participated. The results of this study, as well as the results of other institutional studies,^{3,5,11} represent samplings derived from a select experimental population by virtue of the highly selective entrance requirements of the military service Academies. It would be of considerable interest to acquire follow-up information on those who have failed to complete these studies, presupposing that their omission was attributable to aptitude or intellectual limitations.

The results of this study are in agreement with those reported by Loe.⁴ Gingival inflammation that slightly

TABLE III
MEAN BLEEDING INDEX SCORES*

STUDY GROUP	NUMBER OF SUBJECTS	EXAMINATIONS †			
		INITIAL	SECOND	THIRD	FOURTH
A	21	7.43±2.40	3.71±1.88	7.62±1.86	3.00±1.90
B	24	7.42±2.29	2.75±1.98	7.21±1.87	2.58±1.68
C	23	6.13±2.45	5.43±2.76	6.61±2.78	4.22±2.62

*Means (± standard deviation) within the same bracket are not statistically different ($P > 0.05$).

†Examinations conducted at intervals shown in legend of Table I.

TABLE IV
MEAN PLAQUE INDEX SCORES*

STUDY GROUP	NUMBER OF SUBJECTS	EXAMINATIONS †			
		INITIAL	SECOND	THIRD	FOURTH
A	21	23.52±6.25	7.86±6.35	31.05±3.44	11.05±7.86
B	24	24.00±7.73	9.79±7.52	31.25±4.66	12.62±6.36
C	23	20.87±7.31	20.43±9.38	24.13±7.04	20.69±7.39

*Means (± standard deviation) within the same bracket are not statistically different ($P > 0.05$).

†The key for timing of examinations is summarized in Table I.

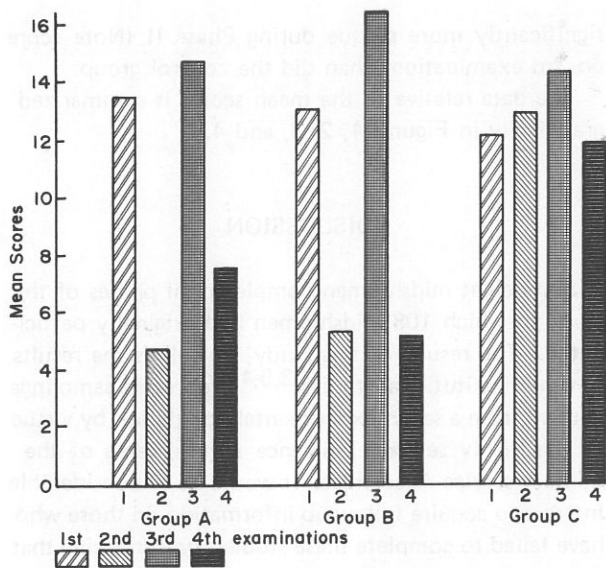


Figure 1.—Mean Gingival Index Scores

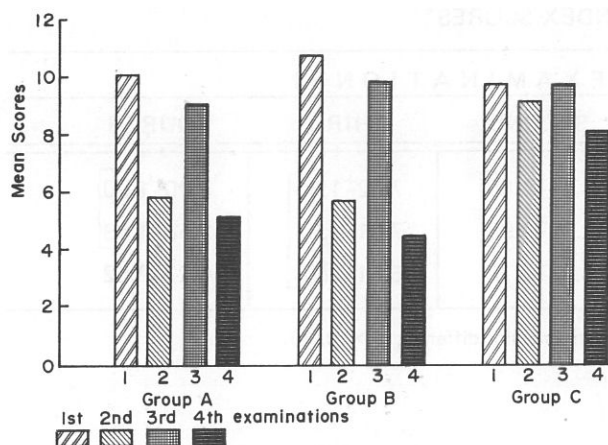


Figure 2.—Mean Gingival Depth Index Scores

exceeded the initial condition (See Figure 1) was re-created by discontinuing all oral-cleansing procedures for a period of three weeks. Both study groups were able to significantly reduce their gingivitis within two weeks following the reestablishment of personal plaque-control procedures. While Group B had slightly better final mean disease scores than Group A (See Figures 1, 2, and 3), there was no demonstrable statistical difference between the groups.

Recognizing the differences in study design from that of Shiller,² similar and conflicting observations are noted. He found no difference among eight oral hygiene motivational programs, using a debris-index evaluation after ten weeks. The two different approaches to plaque-control instruction implemented in our study over the same time period correlate with Shiller's findings; however, the significant difference between the study groups and the control group in our study is not consistent with Shiller's results.

As previously reported,⁸ the abuse of debris or plaque indices in the evaluation of plaque control programs may account for these conflicting observations. It may well be that there is a point of maximum accumulation of plaque (Figure 4) which an individual will tolerate, beyond which his self-image of health is violated. After that point has been reached, such an individual will be motivated toward oral cleansing. Perhaps the use of less sensitive or less quantitative plaque indices have led to their misuse in the evaluation of various preventive-dentistry studies, diverting attention from the importance of raising the patient's self-image of health; greater impact may be exerted by promoting the elimination of gingival inflammation, rather than the elimination of plaque. Studies are currently underway to evaluate this concept.

It appears that the approach toward plaque-control instruction applied in Group A is more practical and efficient than that applied in Group B, especially when the problems of treating large institutional populations are considered. Our findings support a general public-health concept that 2 1/2 times as many patients can be given plaque-control instructions using the Group A

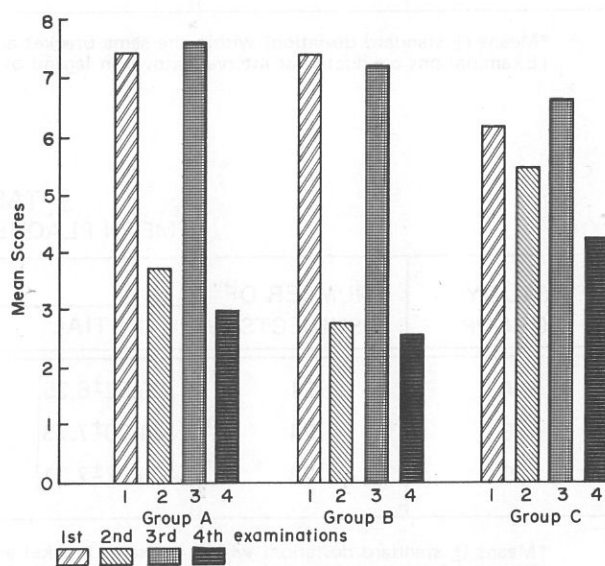


Figure 3.—Mean Bleeding Index Scores

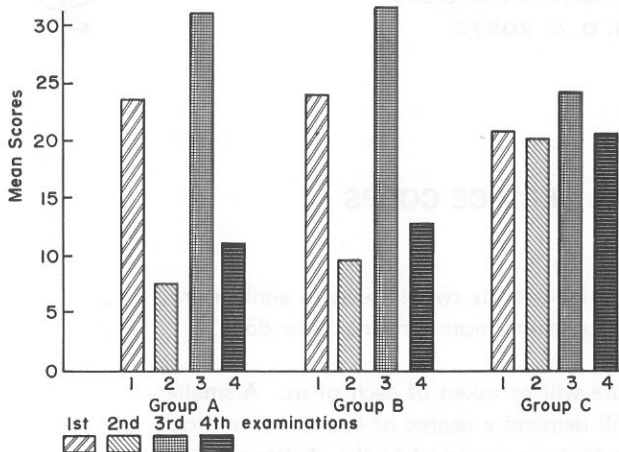


Figure 4.—Mean Plaque Index Scores

approach, and achieve the same results, as compared to the Group B approach. This finding is in agreement with Lightner's previous report.⁵ The majority of American dentists¹ who have implemented plaque-control-appointment timing on a purely subjective basis, are not acting in accord with the current findings of research investigators.

SUMMARY

Sixty-eight midshipmen completed a study designed to evaluate two different approaches to plaque-control instruction.

The validity of the concept of reversibility of gingivitis, in an American population, is demonstrated.

It is suggested that 2 1/2 times as many patients can be given plaque-control instruction, and achieve the same results following two appointed visits spaced one week apart, as compared to five daily visits on

consecutive days. The practical implications of these findings are highly significant.

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NAVAL RESERVE CALL FOR PAPERS

The 81st Annual Meeting of the Association of Military Surgeons (AMSUS) will be held in San Diego, Calif., on 28-31 Oct 1974. The Reserve/Guard Section invites papers from Naval Reservists on any scientific or professional subject, or on subjects dealing with organization or administration of the Reserve.

Abstracts of proposed papers should be submitted by 1 Sep 1974 to: Director, Naval Reserve Division (Code 36), Bureau of Medicine and Surgery, Navy Department, Washington, D.C. 20372. — (BUMED, Code 36A).



DEPARTMENT OF THE NAVY
CHIEF OF THE MEDICAL SERVICE CORPS
BUREAU OF MEDICINE AND SURGERY
WASHINGTON, D. C. 20372



TO THE OFFICERS OF THE MEDICAL SERVICE CORPS

On 4 August 1974 the Medical Service Corps celebrates its twenty-seventh anniversary. Much has been accomplished over this period but much more remains to be done.

As the modern all-volunteer Navy evolves, more will be asked of each of us. A smaller, tougher, trimmer, and more complex Navy will demand a degree of excellence and dedication that will test our mettle. I am certain that we are equal to the challenge.

In each of our six sections the caliber of our young officers has consistently improved over the years and the numbers who apply for augmentation as career officers steadily increase. Our continuing education programs, both inservice and outservice, have contributed significantly to the enhancement in quality of the Medical Service Corps in general.

It would appear in retrospect almost as though we foresaw the upcoming challenges and anticipated the opportunities to assume greater responsibility and broader scope and depth of authority. Accordingly, we began to prepare ourselves to assume heavier burdens.

In the coming years we must dedicate ourselves with renewed vigor to contributing as a partner on the Navy's health care team to the successful achievement of a Health Care Delivery System second to none.

As has been the custom with previous chiefs of the Medical Service Corps, I wish to provide all MSC officers with annual anticipated promotional opportunity data, and other timely items of general interest. An open letter in *U.S. Navy Medicine* offers the most



practical, effective, and thrifty means of disseminating this information. We appreciate the opportunity to use this effective communication medium, and invite the attention and perusal of other members of the Medical Department as well.

It has been my privilege to head the Navy Medical Service Corps for about nine months, and some of you may be wondering when delivery will occur. I am pleased to report a certain degree of progress made in several areas during the gestation period. But first, I must acknowledge that many of these favorable developments are a result of the efforts of those officers who preceded me, as well as a result of the assistance, interest and support of many others, most notably our Surgeon General.

Despite a planned Navy-wide reduction in officer billets, the strength of the Medical Service Corps remains stable at a level of almost 1,800 men and women. The size of the Medical Service Corps has been maintained primarily through increasing requirements for physician extenders and substitutes, within the context of a recent decline in general medical officer strength. Fortunately, several segments of our Corps have been able to assist in filling the breach caused by the physician shortage. Optometrists, psychologists, administrative assistants to chiefs of services, medical technologists, clinical pharmacists, podiatrists, and other medical allied-science specialists are successfully relieving the excessive burden placed on the Navy physician.

RECRUITING PROGRAMS

Recruiting programs for all sections of the Medical Service Corps have produced excellent results. The Armed Forces Health Professions Scholarship Program is successfully enrolling the desired number of optometry and psychology students. The Medical Service Corps Student (Ensign 1935 Active Duty) Program has been equally successful in providing health-care administrators, dietitians, occupational therapists, and physical therapists. All other specialties are recruited directly from civilian life, with the number of applicants in most fields far outnumbering the available billets. In fact, the increasing number of fully trained food-service officers and environmental-health officers who are applying for direct commissions in the Medical Service Corps has reduced our usual requirement for inservice-trained specialists in these fields.

The inservice procurement program for health-care-administration officers is a valuable source of experienced and career-motivated young men and women. Competition in this area is becoming increasingly stiff. For example, the number of Naval School of Health Care Administration (NSHCA) applications received for the one-year training course that began this summer exceeded the 39 billets available by a ratio of 2 to 1. As a result of the keen competition and the high caliber of the applicants, at least 25 of the 39 officers selected should earn a bachelor's degree in health care administration from The George Washington University in Washington, D.C. The academic trend toward degree acquisition is steadily increasing each year. The current class also boasts the first two Navy women to train as health-care administrators under Navy sponsorship.

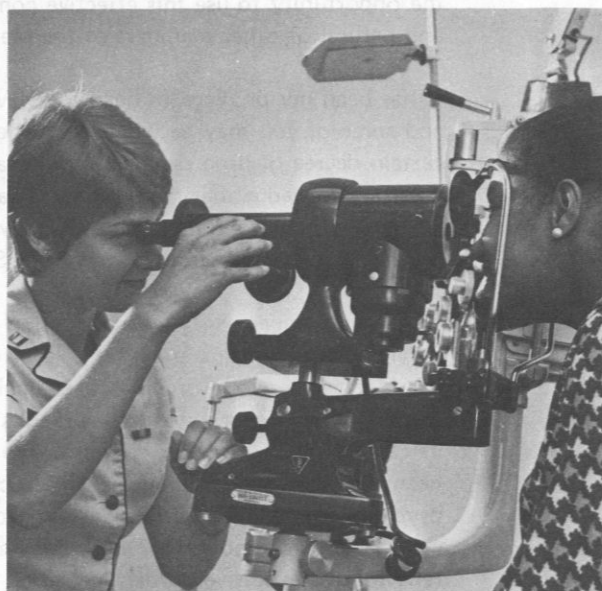
EXPANDED RESPONSIBILITIES

Last year, the Surgeon General announced a three-phase plan for expanding the role of the MSC officer. The first phase, completed last fall, included:

- The assignment of MSC officers to command three large regional medical clinics: in Washington, D.C.; Treasure Island, Calif.; and Seattle, Wash.



LIFE IN THE LAB.—In the laboratory at the National Naval Medical Center, Navy pharmacist LT Glenn E. Otterman, Jr., MSC, USNR introduces intravenous additives. LT Otterman is currently serving at NAVREGMEDCEN Guam, M.I.



SEE DUTY.—Navy optometrist LT Ann R. Wild, MSC, USNR examines the eyes of a young patient at the National Naval Medical Center, Bethesda, Md.

- The designation of 30 MSC administrative officers as executive officers of naval hospitals, medical centers, and dental activities
- The designation of four MSC officers as assistant officers-in-charge of environmental and preventive medicine units

Phase II is now under way, with the following developments:

- Redesignation of administrative officers as executive officers in the remaining naval hospitals, medical centers, and certain other specified medical and dental activities
- Assignment of MSC officers as officers-in-charge of approximately 13 designated regionalized branch dispensaries, with 12 more to be designated as soon as regionalization can be accomplished

Phase III of the plan is scheduled for implementation next year. This phase could, but not necessarily will, include the assignment of MSC officers to command certain specifically designated small naval hospitals.

As increased responsibilities devolve on the Medical Service Corps, it becomes even more important that we prepare ourselves to handle these significant duties. Leadership, good management principles, sensible judgment, thorough knowledge of the Navy health-care-delivery system, and a generous slice of common sense are absolutely essential. I believe that we have these capabilities within our fine Corps, and that we can and will respond successfully to each new demand placed upon us.

EDUCATION AND AUGMENTATION OPPORTUNITIES

Our current plan is to emphasize advanced education for MSC officers wherever a billet requiring an advanced degree can be justified. In other words we will train to meet known requirements, and not on a random basis. Such strategy does not necessarily imply a reduction in training billets; rather, it could result in an increase. As the health-care-delivery system becomes more complex, more advanced education may well be required in many areas for its proper operation. This coming scholastic year will see more than 90 MSC officers in full-time training.

Currently, the Medical Service Corps is comprised of 53% permanently commissioned officers, 21% temporary officers, and 26% Reserve officers. In some sections, a continued heavy augmentation of personnel could result in a lack of turnover in young officers. Augmentation boards are therefore being requested to screen all applicants carefully, selecting only the best and most needed.

PROMOTION PLANS

Although final approval has not been provided by the Chief of Naval Personnel at this time, the following promotion opportunities are anticipated for Fiscal Year 1975:

CDR to CAPT — Year group 54 will be in the promotion zone. The promotion percentage will remain at 60% selection opportunity for the number of officers in the zone.

LCDR to CDR — Year group 59-60 (partial) will be in the promotion zone. The promotion percentage will remain at 70% selection opportunity for the number of officers in the zone.

LT to LCDR — The remainder of year group 66 will be in the promotion zone. As in past years there will be 100% promotion opportunity.

LTJG to LT — All officers who will complete four years of active commissioned service during FY75 will be considered for selection. Service credit granted upon appointment for graduate education, professional training, and experience is included in computing commissioned service. Selectees will be promoted on the first day of the month that follows the month when four years of active commissioned service are completed.

ENS to LTJG — All qualified officers will be promoted upon the completion of 24 months of commissioned service.

The maximum number of officers that the selection board may recommend for promotion is the product of the number of officers within the promotion zone *on the date the board convenes*, and the selection opportunity. Officers above, or below, the promotion zone recommended for selection are included in this maximum number limitation. Below-zone selections are authorized for promotion to the grades of CAPT and CDR, but not for promotion to LCDR and LT.

RESEARCH BILLETS

On 1 July 1974, the Research Division of the Bureau of Medicine and Surgery became the Naval Medical Research and Development Command. With the implementation of this new command, several billets were redesignated from Medical Corps officers to allied-sciences Medical Service Corps officers.

Even prior to the reorganization, program managers for infectious diseases research and for human performance research were senior allied-sciences officers. Incumbents hold doctoral degrees in appropriate specialties. Under the new command structure, it is planned that additional program managers will also be allied-sciences officers. Redesignated assignments include program managers for fleet health-care-systems research, trauma-care research, and fleet occupational-health research. Since approximately one-fourth of our allied-sciences officers hold doctoral degrees, it is anticipated that experienced, well trained officers will be available for these assignments.

In addition to the billets at the command level, commanding officer billets and other senior positions at selected research facilities are being considered for redesignation to the Medical Service Corps.

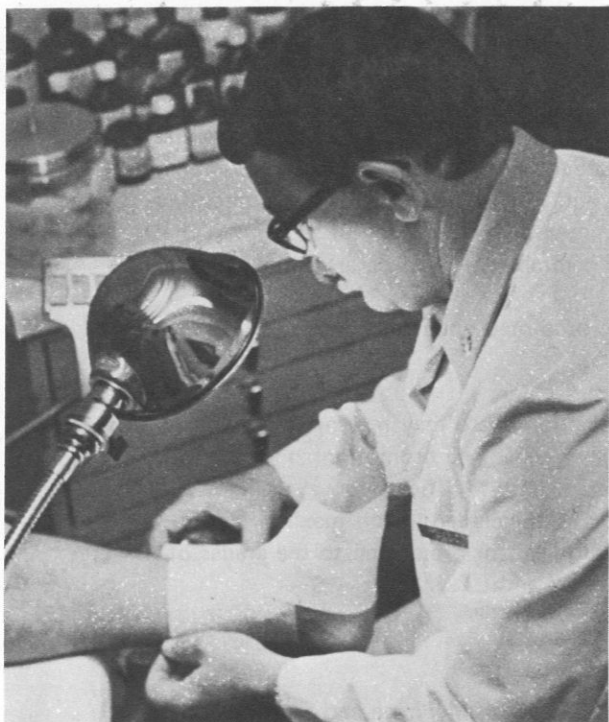
HEADQUARTERS STAFFING

In recent months, several changes have occurred in the staffing of the Medical Service Corps Division, Bureau of Medicine and Surgery (Code 35). Changes in key assignments include:

► Deputy Director, MSC Division (Code 35A): CAPT William E. McConville, MSC, USN.

► Head, Career Planning and Distribution Branch (Code 351): CDR Robert L. Surface, MSC, USN.

► Head, Procurement and Training Branch (Code 352): LCDR James T. Dalton, MSC, USN.



WRAP-UP.—CDR John D. Myers, MSC, USN, staff podiatrist at the Naval Aerospace and Regional Medical Center Branch Dispensary, NAS Pensacola, Fla., bandages a patient's foot after treatment.



CLINICAL INTERN.—LTJG J. Jay Brunza, MSC, USNR administers a psychodiagnostic test to a patient as part of his clinical internship in psychology at the National Naval Medical Center.

► Assistant for Medical Specialist Officer (Code 35E): CDR Ann C. Hatten, MSC, USN.

These fine officers were carefully selected for their present assignments specifically because of their management expertise, dedication, and integrity, in order that they might render the best possible service to the officers of the Medical Service Corps, as well as to the Medical Department and the Navy.

These officers may be reached by telephone on Autovon 294-4125 or 294-4245, or on commercial lines at (Area Code 202) 254-4125 or 254-4245.

Other recently changed key assignments of MSC officers in BUMED that might be of interest to you include:

► Director, Manpower Requirements Division (Code 37): CAPT Joseph Feith, MSC, USN. Autovon: 294-4238, Commercial: (202) 254-4238.

► Director, Hospital Corps Division (Code 34): CDR Walter A. Godfrey, Jr., MSC, USN. Autovon: 294-4167, Commercial: (202) 254-4167.

► Executive Assistant to the Assistant Chief for Headquarters Operations (Code 2A): CDR James C. Thompson, MSC, USN. Autovon: 294-4161, Commercial: (202) 254-4161.

► Executive Assistant to the Assistant Chief for Personnel and Professional Operations (Code 3A): CDR Richard E. Erwin, MSC, USN. Autovon: 294-4311, Commercial: (202) 254-4311.

► Assistant for Pharmacy Officers, MSC Division (Code 35D): CAPT Theodore W. Tober, MSC, USN. Autovon: 294-4164, Commercial: (202) 254-4164.

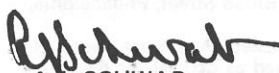
► Assistant for Optometry Officers, MSC Division (Code 35C): CAPT Donald E. Still, MSC, USN. Autovon: 294-4305, Commercial: (202) 254-4305.

► Assistant for Clinical Psychology Officers, MSC Division (Code 3131): LCDR Loren D. Acord, MSC, USN. Autovon: 294-4247, Commercial: (202) 254-4247.

As I visit the various medical and dental facilities throughout the Navy, I am constantly impressed with the consistently high caliber of our Medical Service Corps officers. Senior staff officers at these facilities frequently tell me of their high regard for the MSC personnel, of all specialties and rank, with whom they work.

I am proud to represent such a superb community, and extend my sincere congratulations to each of you for a job well done. Best wishes on our twenty-seventh anniversary.

Sincerely,



A.J. SCHWAB
Captain, MSC, USN

THE DRUG-POTENCY QUESTION

By LCDR Jerry "M" Walker, MSC, USN*

INTRODUCTION

As most Navy medical and dental personnel are aware, today's pharmaceutical industry is a highly regulated and closely supervised, quality-minded body tasked with the responsibilities of marketing safe, pure, potent and efficacious drug products. Like many of the health and welfare regulations, the measures that now comprise the "Food, Drug and Cosmetic Acts" were generated by events that aroused the Nation's conscience. In 1901, for instance, the death of ten children in St. Louis as a result of diphtheria serum contaminated by lethal tetanus toxin prompted the passage of one of the first food and drug acts — the Virus, Serum and Toxin Act.

Although this marked a beginning, many inadequacies still existed and further efforts at strengthening national food and drug acts awaited impetus provided by subsequent tragic events. In October 1937, national newspapers headlined reports of over 100 deaths resulting from a manufacturer's misguided efforts to market a liquid form of sulfanilamide elixir. The company's chemist had tested the solvent diethylene glycol (similar to antifreeze) for appearance, fragrance and flavor — but not for safety! In a climate of indignant public reaction to this appalling tragedy, President Franklin D. Roosevelt signed the much-needed "Food, Drug and Cosmetic Act of 1938."

For the first time, drug manufacturers were required by law to possess an approved application before new drugs could be introduced into interstate commerce.

To obtain a New Drug Application (NDA) manufacturers had to present clear-cut evidence, from a pharmacological and human testing standpoint, that their products were safe for human use.

Unfortunately, at that time, it was still not necessary to prove drug efficacy. Consequently many drugs appeared on the market without convincing evidence that they cured or mitigated the diseases or condition for which they were promoted. It was not until 1962 that reports of the thalidomide deformities in Europe prompted the Kefauver-Harris Act, which effectively plugged the drug-efficacy loophole.

To market drug products today, manufacturers must first submit New Drug Applications (NDAs) to the Food and Drug Administration (FDA), and substantiate the safety and effectiveness of pharmaceutical agents. Detailed manufacturing information must be presented in evidence for uniformity, purity, and potency; the method of preparation must be precisely described in order to facilitate FDA review. Furthermore, manufacturers must substantiate the integrity of their drug containers and packaging materials, especially if plastics are involved. Safety and effectiveness of drugs must be proven beyond all reasonable doubt.

Unfortunately, the integrity of a drug which has been meticulously controlled and monitored during production phases cannot always be permanently guaranteed. Time, temperature, humidity, and improper storage conditions are unrelenting adversaries, and inevitably deterioration occurs. It is not surprising, therefore, that the question of drug potency represents one of the more perplexing problems which confront Navy medical and dental personnel. The dilemma becomes particularly acute if such factors as age, stability, date of manufacture, rate of deterioration, and past condition of storage are unknown.

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The opinions or assertions expressed herein are those of the author and are not to be construed as official, or necessarily reflecting the views of the Navy Department, or the naval service at large.

The purpose of this article is to provide background, clarity, and guidance in the sensitive area of drug potency, and to acquaint medical personnel with potency-extension procedures which have been established by the Navy.

THE FDA AND THE PHARMACEUTICAL INDUSTRY

Reflecting the concern of the pharmaceutical industry and the FDA for quality products, many of the potency and expiration problems which have plagued medical personnel for years have been, or are in the process of being resolved.

The FDA's drug responsibilities are vested in the Bureau of Drugs, an agency which consists of about 1,000 professionally skilled personnel backed by a field force of approximately 400 drug inspectors.¹ It is the responsibility of this Bureau of Drugs to assure the public that all generic and brand drugs made by large or small manufacturers are safe, effective, honestly labeled, and of the quality necessary to produce the intended effect. Should the quality, the labeling, the potency, the purity, or the effectiveness of the finished drug products be found wanting, the Bureau of Drugs is required to take appropriate action.

All pharmaceutical companies are bound by the same manufacturing regulations, the Good Manufacturing Practice (GMP) standards. These standards regulate all aspects of manufacturing, from the weighing and measuring of raw materials to the packaging of the end product. Among the changes being actively pursued this year is a requirement that all drug products bear an expiration date which conservatively establishes the period of time during which potency is maintained.^{2,3} Many well known pharmaceutical manufacturers, realizing the importance of the new GMP standards, have already initiated across-the-board expiration labeling practices.

In order to assure the high quality of this country's drugs, the Bureau of Drugs operates two large automated analytical laboratories. The center in Washington, D.C., is tasked with certifying antibiotic and biological products, while the laboratory in St. Louis functions as the FDA's National Center for all other drug analysis.

Before marketing, samples from every batch of antibiotics produced in this country, as well as reports of the results of use in animal and human tests, quantitative lists of ingredients in each formula, descriptions of manufacturing procedures, tests and checks, and the proposed labeling must be submitted to the Washington center. If the samples meet the specifications of the National Formulary (NF) and the United States

Pharmacopeia (USP), and if the manufacturer's ancillary data are substantiated, the guaranteed batch of antibiotics from which the samples were taken is certified for interstate marketing, and an expiration period is assigned. As a testimony to the quality of U.S. products, last year approximately 20,000 antibiotic and biological samples were processed by the Washington laboratory. Less than 1% of all the evaluated products failed to rate certification.

Like the Washington center, the St. Louis National Center for Drug Analysis is a highly automated laboratory equipped for analyzing large volumes of drug products. Except for isolated cases, such as digoxin products, the St. Louis center is not involved in drug certification or establishment of expiration periods.

THE NAVY POTENCY-EXTENSION PROGRAM

Unlike our civilian counterparts, the military services have developed procedures for testing and extending the expiration dates of antibiotic, and other standard stock-supply items, which are designated as having extendable potency periods.

Inception of the Navy Potency-Extension Program, as best as can be determined, occurred in 1955. Since that date Navy assets worth hundreds of thousands of dollars have been extended beyond their original expiration dates, and have been used to the maximum extent possible. Although the total magnitude of the extension program cannot be fully determined, certain facts accumulated by the Navy Medical Materiel Support Office can be readily cited. Last year for instance, Navy activities submitted extension requests on 51 items valued at more than \$63,000. During the same year the Defense Personnel Support Center, acting in liaison with the military services, the FDA, and the pharmaceutical industry, announced 162 potency extensions. In calendar year 1972, 63 Navy potency-extension requests were recorded and 188 extensions were announced by the medical material offices of the three military services.

The importance of the Navy potency program cannot be overemphasized. In 1971, for example, the loss of several hundred thousand doses of measles vaccine (a very short potency-dated item) was averted by retaining the vaccine in its bulk suspension form at the manufacturer's plant, where the viability of the vaccine was maintained under optimum conditions. When Navy requests for the vaccine materialized, portions of the bulk material were withdrawn, packaged, and issued with the maximum marketable expiration period. Had the bulk vaccine been prepackaged and dispersed in one or two large consignments, untold quantities would

have expired before ever reaching the consumer. At the present time, the fate of more than one million Navy-owned units of morphine sulfate syrettes awaits a verdict based on the Department of Defense findings on serviceability.

EXPIRATION- AND NONEXPIRATION-DATED ITEMS

Within the confines of the Navy potency program, standard stock-supply items are divided into two classes: those which are expiration- or potency-dated, and those which are not. At the time of this writing 40% of all Federal Supply Classification (FSC) 6505 items (drugs, biologicals, and official reagents) are expiration-dated. Within a few years this percentage will approach 100%, as more and more prescription-drug manufacturers comply with the proposed Good Manufacturing Practice requirements.³ Although the percentage of nonpharmaceutical medical and dental items with potency periods is considerably less than 40%, increasing trends are also imminent in this area.

The United States Pharmacopeia (USP) and military specifications require that labels and immediate package containers of potency-dated products bear an expiration date that limits the period of time during which the article, if stored under proper conditions, may be expected to maintain the specified potency. It should be noted that in those instances when the day of the month is omitted from the labeled expiration date, the article expires on the last (*not the first*) day of the month.

Expiration-dated items are further subclassified as either Type I nonextendable, or Type II extendable potency-dated items. At first glance, the distinctions between classified agents seem rather obvious. Paradoxically, however, this is not always the case. Under certain conditions which will be described later, the potency periods for Type I nonextendable items with less than 60 months' potency can, have been, and will continue to be extended.

TYPE I NONEXTENDABLE ITEMS

For the most part, Type-I items are biological and nonantibiotic products which have been classified, or are known to have nonextendable potency periods. Familiar items include: aspirin, APCs, diazepam tablets, oral birth-control tablets, chlordiazepoxide capsules, dextrose injection solutions, and of course, all biologicals (i.e., vaccines, toxoids, and antisera).

Since current expiration standards employed by the pharmaceutical industry prohibit the marketing of drug

products with expiration periods exceeding five years, all drug products (excluding antibiotics) having five-year potency periods are automatically classified as Type-I nonextendable items. Chlordiazepoxide capsules, diazepam tablets, probenecid tablets, tolbutamide tablets, and oral contraceptive tablets are well known examples of five-year nonextendable potency-dated items.

As previously mentioned, potency extensions of Type-I nonextendable items with less than five-year-expiration dating have been, and will be periodically authorized by the FDA. However, unlike Type-II items, Navy activities cannot request potency extensions on individual lots of Type-I items. As a classical example of a Type-I extension, the potency period of Wyeth's Morphine and Meperidine Tubex Injections was increased from 18 to 24 months in 1968 when stability studies conducted by the manufacturer — at the request of the Naval Medical Materiel Support Command — demonstrated that serviceability of the item could be safely increased without patient risk or loss of drug potency. Again in 1972, as a result of continued stability studies conducted at Navy insistence, and following improvements in production and packaging techniques, potency periods were increased from 24 to 48 months. It is quite possible that the potency periods of morphine and meperidine Tubex injectables (Wyeth) may ultimately be extended to 60 months.

A classic example of a Type-I potency increase, the expiration period of intravenous solutions in flexible transparent plastic containers was limited to 24 months when these items were first standardized in 1972. In April 1974, representatives of the manufacturing firm announced that the expiration periods had been increased to 3 years, and that New Drug Applications (NDAs) with 4-year-potency periods were pending FDA approval.

TYPE II EXTENDABLE POTENCY-DATED ITEMS

Type II extendable potency-dated items, as their name implies, are medical and dental items with potency periods that may be extended if prescribed testing and/or restorative action can be satisfactorily completed. Generally speaking, Type II items are antibiotic preparations and miscellaneous items (i.e., Acetone Test Tablets, Blood Detection Tablets, Blood Collecting Tubes, Endo Broth, Sodium Pentobarbital Injection and etc.) with potency periods of less than 60 months. It should be noted that antibiotics with 60-month potency datings have been routinely extended; however, enactments of the proposed 5-year GMP standards may supersede this practice.

In contrast to the infrequent Type I expiration-period extensions which affect all lots of a designated drug substance manufactured subsequent to a given date, Type II extensions affect specified or individual lots of drugs. No changes are manifested in lots of drugs manufactured prior to, or after, the individual lot concerned.

Prior to 1972 and the FDA-Defense Personnel Support Center (DPSC) interagency agreement establishing definite antibiotic potency-extension time-frames, a seemingly liberal extension policy existed. Prior to the rigid standards of today, prolonged expiration-period extensions (i.e., 4- or 5-year extensions for broad-spectrum antibiotics such as tetracycline, oxytetracycline, erythromycin and chloramphenicol products) were frequently announced.

Subsequent to March 1972, the FDA adopted more stringent antibiotic-extension regulations. Under the revised policies antibiotic capsules, tablets, and dry powders for reconstitution are limited to a maximum extension of 3 years, approved on a year-by-year basis. All other antibiotic preparations are subject to 1-year maximum extensions. With the exception of the proposed 5-year maximum GMP standards, universal standards for potency extension time frames of nonantibiotic preparations have not been agreed to by members of the pharmaceutical industry. Extension time frames are subject to the discretion of individual drug manufacturers.

It is interesting to note that the number of studies, and the length of time during which stability data have been accumulated are integral factors in the determination of potency periods. Erythromycin, oxytetracycline, and tetracycline, for example, are established antibiotics for which stability properties have been well documented and defined by years of investigative work. Accordingly, the maximum 60-month potency periods proposed for these drugs have been approved by the FDA. Minocycline and spectinomycin, on the other hand, are comparatively new antibiotics with limited investigatory data on stability. Naturally, shorter FDA expiration periods are expected. In the case of new drugs like minocycline and spectinomycin, NDAs with initial expiration periods of 1-2 years are customarily granted. After sufficient stability data have been gathered by the manufacturer and presented to the FDA, subsequent increases of 1-2 years may be authorized.

Ironically, the potency periods of many nonproprietary pharmaceuticals, i.e., sodium ampicillin capsules, will vary significantly from manufacturer to manufacturer depending upon the amount of stability data presented to the FDA. As a result, expiration period references used by the military services reflect more

than 40 nonproprietary (generic) items having variable potency periods. This variability necessitated the establishment of *minimum* potency periods. For NSN 6505-00-770-8343 sodium ampicillin capsules, 250 mg., 100s, the minimum potency period is 48 months. Thus, any brand of NSN 6505-00-770-8343 that military customers receive through DSA pipelines will have been manufactured with an expiration period of 48 months, or more.

SUBMISSION AND HANDLING OF NAVY POTENCY-EXTENSION REQUESTS

Stipulations in the interagency agreement of March 1972 require the Defense Personnel Support Center (DPSC) to reimburse the FDA for all potency-extension services provided, and to deliver, without cost, all samples of material to be tested. In 1972, the FDA-estimated cost for testing military antibiotics was \$30,000. Because of the high cost of testing, Navy directives require that a minimum of \$100 per drug lot be on hand, prior to submission of an extension request. Since normal handling and testing time approximates 6 months, and since many items can only be extended for a maximum of 12 months, extension requests should be submitted 3-6 months prior to expiration. For economical reasons, unreported outdated material should be held in suspension for 6 months pending possible potency-extension announcement, before stocks are surveyed and destroyed.

Navy potency-extension requests are submitted to the Naval Medical Materiel Support Command (NMMSC) in Philadelphia in accordance with prescribed procedures.⁵ Reports are recorded for future monitoring purposes by the NMMSC, and are then forwarded to the DPSC for further processing. Antibiotic requests are submitted to the FDA's National Center for Antibiotics and Biologicals in Washington, D.C., and all other requests are forwarded to the appropriate manufacturers for extension consideration. Samples of material reported for evaluation may be requested from: the activity initiating the extension request, a Defense Supply Agency (DSA) depot stock point, or from the manufacturer's retention files.

At the FDA's or the manufacturer's testing site, samples of material are assayed and the manufacturer's stability data are reviewed before a final determination is announced. In most cases, the assays performed only include tests for color, clarity, pH, sterility, dissolution and quantitative analysis. Bioavailability and blood-level assays are rarely performed.

Results of the potency determination are back-routed through the DPSC for promulgation to the DSA depot


stock points, and to the medical material offices of the three military services. When received by the NMMSC, information regarding potency extensions is disseminated to more than 2,300 Navy and Marine Corps medical facilities by means of the Navy Medical and Dental Materiel Bulletin, and to the initiating medical activity by letter format.

CONCLUSION

Significant segments of the Navy potency program are presented for review purposes. The dilemmas, the benefits, and the procedures for requesting potency extensions are discussed, in order to provide medical and dental personnel with a greater awareness of the overall goals of the Navy program. In an era of rising costs and sophisticated medical products, it is essential that Navy personnel recognize their responsibilities and strive to achieve maximum utilization of their material resources. The maintenance and use of potent, indated stocks of medical supplies are important requirements for all personnel, and in particular, for the patients whose lives may well depend upon the quality and potency of products prescribed for them. Publication and maintenance of a well controlled manual, or


implementation of an automated potency-surveillance program such as that developed at Oak Forrest Hospital,⁶ is essential if the problems of outdated medications are to be eliminated.

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MEDICAL SERVICE CORPS CELEBRATES BIRTHDAY



26 YEARS OLD.—With the help of four junior officers, CAPT Robert M. Ware, MSC, USN (left), senior MSC officer at the Pensacola Navy complex, cuts into the anniversary cake at ceremonies celebrating the 26th birthday of the Medical Service Corps in Aug 1973. The young officers, all aerospace physiology students at the Naval Aerospace Medical Institute at the time, are (from left to right): ENS Michael J. Ciernicki, MSC, USNR; ENS William H. Etheridge, MSC, USNR; ENS Ronald O. Smith, MSC, USNR; and ENS Joseph E. Zambie, MSC, USNR. — PAO, Nav Aerosp and Reg Med Cen, Pensacola, Fla. 

How Do You Treat An Alcoholic?

By LCDR C. Stephen Bonney, MC, USNR,* and
MUCM Jay A. Piper, USN;**
Alcohol Rehabilitation Unit,
Naval Hospital Bremerton, Washington 98314.

Q. How do you treat an alcoholic?

A. Very effectively.

That's how it's done at the Alcohol Rehabilitation Unit (ARU) at Nav Hosp Bremerton, Wash., where the staff provides specialized treatment and rehabilitation for inpatients and outpatients who suffer from alcoholism. The therapeutic program offered by the Bremerton ARU includes: use of prescribed pharmaceuticals; individual and group therapy, and counseling for patient and spouse; alcohol education classes; physical fitness classes; occupational therapy; and follow-up therapy after the patient departs from ARU supervision.

Most patients are referred to the Bremerton ARU from courts, chaplains, ships, and shore installations within the Thirteenth Naval District; many patients seek help on their own initiative; three patients have come from the Army. Upon admission to the ARU the patient receives a thorough medical workup, including extensive laboratory tests and electrocardiogram studies, to determine the extent of the damage which alcohol may have already inflicted and whether any

contraindications to the use of Antabuse are presented. Findings are carefully discussed with the patient.

In an effort to resolve even the most difficult problems, the Bremerton ARU staff uses many forms of psychotherapy, including group psychotherapy, psychodrama, reality therapy, and individual and marital counseling. As in most other alcoholism programs, the orientation is basically psychological. The psychotherapeutic program is strongly supportive of the individual, helping to build a relationship of trust and confidence between patient and staff. When necessary, patients are firmly confronted with the reality of their problem. This direct approach makes great demands on the talent and time of all members of the staff, from the unit secretary to the attending physician.

At Nav Hosp Bremerton, psychiatric and alcoholic patients are assigned to the same 23-bed unit; 15 of these beds make up the ARU. Each ARU patient is assigned to a double room with private bath. This arrangement has been mutually beneficial: the problems of psychiatric patients are often relevant to alcoholic patients, who tend to be defensive; and the strong ego and reality functions of alcoholics are often helpful to psychiatric patients.

Admissions to the ARU are staggered, so that patients already in treatment can serve the newcomers as therapeutic allies and co-therapists. While dealing with the problems of others, the patients are encouraged to acknowledge and solve their own problems.

*LCDR Bonney is the director of the Alcohol Rehabilitation Unit at Nav Hosp Bremerton, Wash.

**MUCM Piper is the assistant director of the Alcohol Rehabilitation Unit.

The opinions or assertions contained herein are those of the authors and are not to be construed as official, or reflecting the views of the Navy Department or the naval service at large.



ARU STAFF.—The staff of the Alcohol Rehabilitation Unit, Nav Hosp Bremerton, Wash., provides specialized treatment for patients suffering from alcoholism. Staff members include: (left to right, front row) — Margaret Morgan, secretary; Faye Childers, alcohol counselor; LT Jan Ford, NC, USNR, ward nurse; LCDR C. Stephen Bonney, MC, USNR, chief of psychiatry; (back row) — LT Kevin F. Connolly, MC, USNR, staff psychiatrist; HM3 Rob Eastman, ward corpsman; MUCM Jay A. Piper, alcohol counselor; and HM3 Dan Johnson, ward corpsman. (Photos by HM2 Peter R.B. Grattan, USN.)



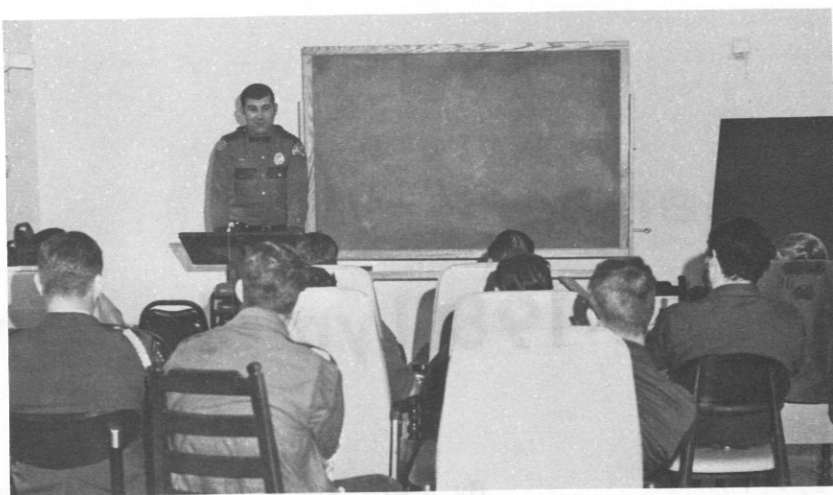
COUNSELING SESSION.—Mrs. Faye Childers, alcohol counselor, helps a patient find a solution to his drinking problem. Counseling is one of many forms of psychotherapy used in the Bremerton ARU.

Physical rehabilitation and activity therapy help patients to recover their physical well-being and develop a new sense of accomplishment. It is important for them to feel well physically, and to reenter the world of interaction on a social level. Such activities reaffirm the positive aspects of physique and social involvement, reinforcing the belief that the patients are creative, worthwhile human beings who are capable of managing their lives effectively.

The Bremerton rehabilitation program includes an educational curriculum which has been approved for college credit by Olympic College. The curriculum consists of films, literature, and lectures by ARU counselors, the chaplain, the hospital commanding officer, the dietitian, and staff members of the psychiatry, internal medicine, and physical therapy departments. Guest speakers from law enforcement agencies, legal aid, and community care facilities also participate.

Patients pay their own college tuition fee. On completing the recommended six-week course of treatment at the Bremerton ARU, an individual can earn ten quarter-hours of college credit: five in psychology, and five in sociology. These credits may provide incentive for further education.

CREDIT IS GOOD.—The Bremerton ARU sponsors a six-week education curriculum through which patients can earn college credit. Washington State Patrolman Terry Drews is one of the regular program lecturers.



Community resources are an important part of the rehabilitation program. Patients participate in Alcoholics Anonymous groups and meetings throughout the area, where they are exposed to a variety of methods and approaches to the problem of alcoholism. Each patient is allowed to choose the group that best meets his individual needs. As they become more involved with their chosen community, patients learn that there are many places to which they can go for support and fellowship.

Because alcoholism is a disease that affects the entire family, the Bremerton ARU provides continuing support to patients after they return to their homes, and also offers counseling and psychotherapy to the patients'

dependents. Members of the ARU staff personally contact the spouse of each patient; families are encouraged to become involved in the educational and therapeutic portions of the rehabilitation program, and to participate in counseling and marital group therapy.

Since it was established in Jan 1973, the Bremerton ARU has achieved a 78% recovery rate among patients who have completed the full treatment program. This success can be attributed to the creative thinking, meticulous planning, and professional teamwork of all the participants. The staff is thoroughly trained and experienced in the field of alcoholism, and is dedicated to the job of returning rehabilitated alcoholics to productive military service and rewarding lives.



GUEST SPEAKER.—Detective Pat O'Neill, of the Bremerton Police Department, participates in the education curriculum offered by the ARU at Nav Hosp Bremerton. The curriculum has been approved for college credit by Olympic College.



DIRECTORS.—LCDR C.S. Bonney, MC, USNR (left), director of the Bremerton ARU, discusses future plans for the program with MUCM J.A. Piper, USN (right), assistant director of the unit.

Experience with Au-198 Lymphoscintigrams

By CAPT Joseph A. Russotto, MC, USN,*
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Although Sage and coworkers introduced human lymph node scanning in 1960,¹ it has not been generally used to advantage. The purpose of this report is to add further record of experience with 22 cases to the literature.

MATERIALS AND METHODS

Twenty-two patients with documented or suspected malignant disease were studied. A breakdown of the disease entities represented is listed in Table 1.

Patients were injected in the webbing of the first-second toe with 50 microcuries of gold-198 colloid, combined with 75 units of hyaluronidase and 1% procaine hydrochloride to enhance absorption. The total volume of injection was kept under one milliliter, and the patients were encouraged to walk liberally after injection. Scans of the thighs, pelvis, and abdomen were done at 2, 4-6, and 24 hours after injection on a Picker Colorpix scanning unit. Initially scans were also performed 48 hours after injection.

RESULTS

Of the 24 lymphoscintigrams done on 22 patients, 18 were abnormal and 6 were normal. Two of the patients with abnormal scans were studied twice.

The following abnormal scan findings were observed:

- 1) Enlarged node groups (Figure 1B)
- 2) Irregular and patchy activity in node groups (Figure 1C)
- 3) Absence of flow to node groups (Figures 1C & 1D)
- 4) Obstruction of flow past node groups (Figures 1B, 1C, & 1D)
- 5) Poor lymphatic and heavy liver activity, considered to be secondary to lymphatic insufficiency or obstruction, and venous absorption (Figures 1E & 1F)

Correlative studies were done in only 10 cases. The results are listed in Table 2. Correlation with lymphangiogram and/or surgical exploration was 90%, which compares favorably with the observations of others.²

In all cases results obtained on 4-6 hour scanning were complete; no further useful information was obtained with later scans (Figure 2).

No untoward reactions to the injection were observed in any of the cases.

DISCUSSION

Thirty percent of the ^{198}Au -colloid injected interstitially leaves the injection site, with no further absorption after 6-12 hours. Practically all of the interstitially injected colloidal gold that leaves the injection site enters the lymphatics. Seventy-five percent of the absorbed gold goes to the superficial lymph nodes, 20% to the deep lymph nodes, and 5% to the liver. To all intents and purposes, the isotope is still present 2 weeks after injection, in the same areas and in the same

*CAPT Russotto joined the staff at the Naval Regional Medical Center Portsmouth, Virginia, in May 1974. The hospital at St. Albans now belongs to the Veterans Administration, although a Naval Dispensary remains at the site.

The opinions or assertions contained in this paper are those of the author and may not be construed as official, or necessarily reflecting the views of the Navy Department or the naval service at large.

TABLE 1.—DISTRIBUTION OF DISEASE ENTITIES IN GROUP OF SUBJECTS ON WHOM LYMPHOSCINTIGRAMS WERE PERFORMED.

<i>Disease</i>	<i>No. Patients</i>	<i>No. Abnormal Lymphoscintigrams</i>
Hodgkin's disease	11	8
Lymphosarcoma	1	0
Other lymphomas	4	5*
Seminomas	1	2*
Tonsillar sarcoma	1	1
Urinary bladder carcinoma	1	1
Aplastic anemia	1	1
Malignancy suspected but none found	2	0
<i>Totals:</i>	<i>22</i>	<i>18</i>

*Two scans done on same patient.

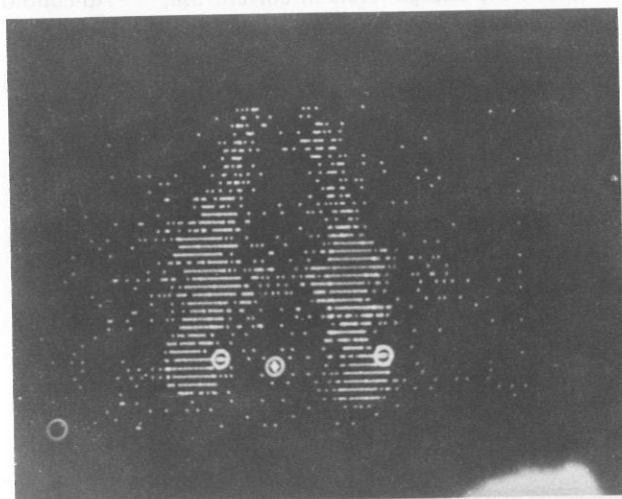


Figure 1-A.—Normal lymphoscintigram.
(NOTE: All photographs were originally recorded in color, but are reproduced here in black and white.)

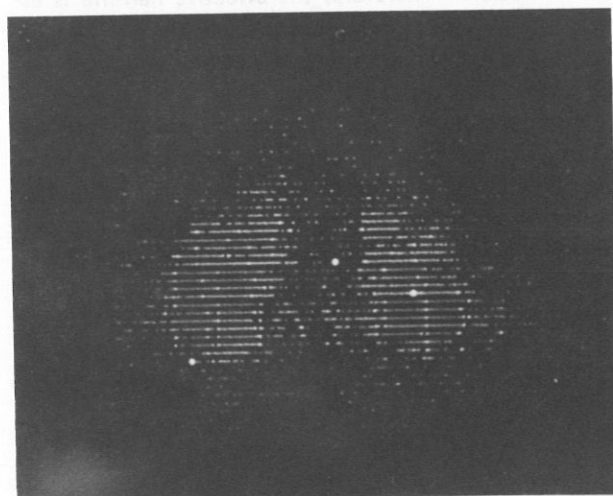


Figure 1-B.—Lymphoscintigram demonstrating enlarged femoral node groups and obstruction of flow past the femoral node groups.

TABLE 2.—CORRELATION OF LYMPHOSCINTIGRAMS WITH OTHER PROCEDURES.

<i>Results of:</i>	<i>Results of:</i>
1. Lymphangiogram,	Lymphoscintigram,
3 positive	4 positive
2 negative	1 negative
<i>Results of:</i>	<i>Results of:</i>
2. Surgical Exploration,	Lymphoscintigram,
5 positive	5 positive

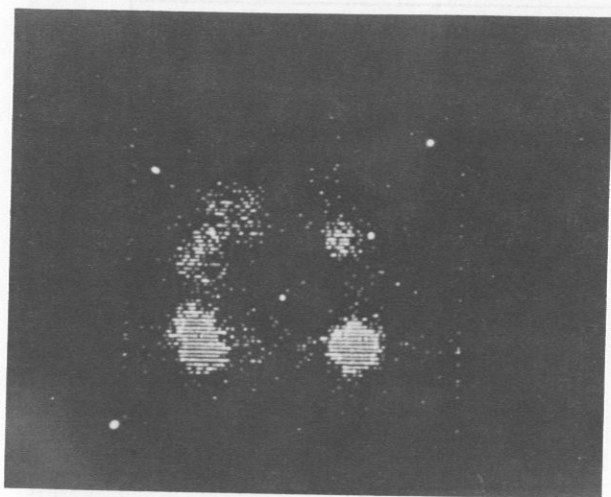


Figure 1-C.—Lymphoscintigram demonstrating patchy, moth-eaten activity in the deep femoral and iliac node groups, with obstruction of flow past the iliac groups.

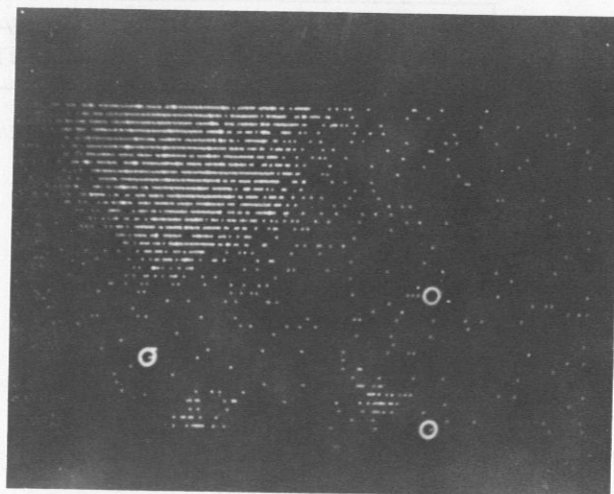


Figure 1-E.—Lymphoscintigram demonstrating poor activity in the femoral node groups, with no other lymphatic activity and heavy liver activity.

concentration. Therefore, the effective half-life is essentially the same as the physical half-life.^{3,4} Use of hyaluronidase will speed the absorption, and increase the percent absorbed.¹

Correct results can be expected in over 80% of lymphoscintigrams. False positive results occur more frequently than false negative results.⁵ False interpretations of lymphoscintigrams are probably due largely to normal variation in the lymphatic system, and one-plane scanning.^{2,6}

Radiation necrosis could conceivably result when large doses are used. With the currently employed doses, however, only slight edema and discoloration in the injection area have been noted.^{2,6}

Given the dosage levels in current use, ^{198}Au -colloid lymphoscintigrams represent a safe and useful screening tool.

In this report it has been noted that scan information is complete at 4-6 hours postinjection. In order to limit the radiation dosage and improve the count rate, a radiopharmaceutical with a relatively short half-life (such as technetium, $^{99\text{m}}\text{Tc}$ -sulfur colloid) is the agent of choice in performing lymphoscintigrams. Studies with $^{99\text{m}}\text{Tc}$ -sulfur colloid revealed good results, with absorption levels similar to gold (^{198}Au -colloid).⁷

The prior performance of lymphangiograms or previous radiation therapy will alter lymphoscintigrams, interposing positive findings.^{1,5}

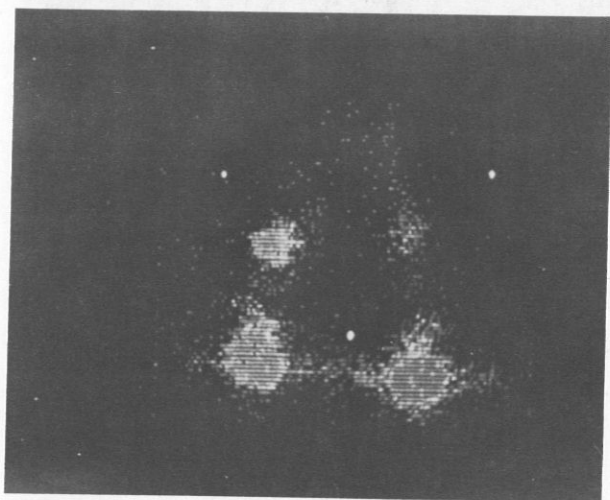


Figure 1-D.—Lymphoscintigram demonstrating absent or poor activity in the deep femoral node groups, and poor activity in the left iliac and periaortic groups.

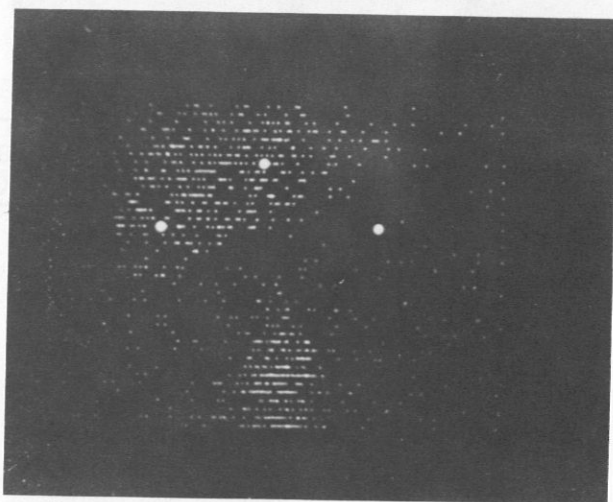
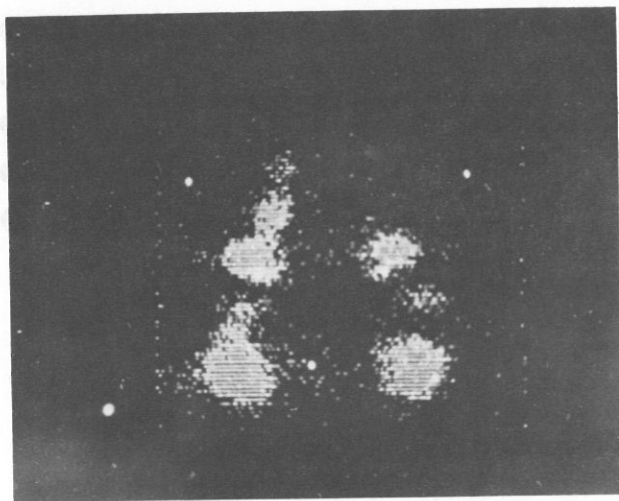
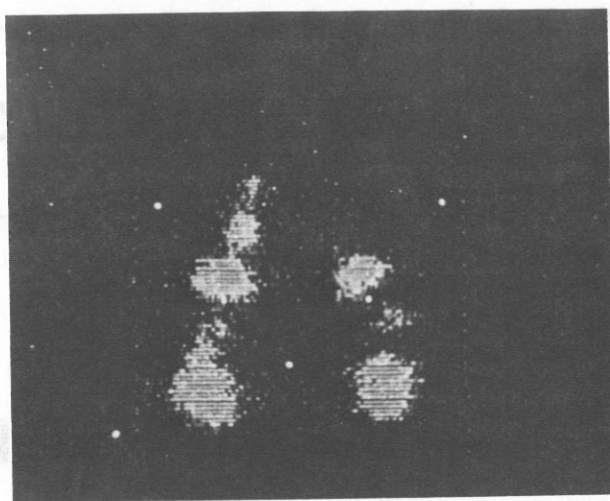


Figure 1-F.—Lymphoscintigram demonstrating high periaortic obstruction and heavy liver activity.



2-A.—Five hours postinjection.



2-B.—Twenty-four hours postinjection. Note the absence of change between 2-A and 2-B.

Figure 2.—Abnormal lymphoscintigrams reveal patchy, irregular node activity with obstruction at the level of the iliac node group on the left side, and at the level of the periaortic node group on the right side.

SUMMARY

Lymphoscintigrams were done on 22 patients using ^{198}Au -colloid, injected into the webbing of the toes. Good correlation was found in 9 of 10 patients who underwent other additional studies. Observed abnormal findings were: enlarged node groups, patchy and irregular activity in node groups, obstruction of flow to or beyond a node group, and poor lymphatic activity with heavy hepatic activity. Useful information obtained by scanning was complete in 4-6 hours post-injection, suggesting that a short half-life radiopharmaceutical would be the agent of choice for producing lymphoscintigrams.

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NEW SCHOOL DESIGNATIONS

A new system of identifying Navy schools and courses went into effect 1 Jul 1974. To facilitate management procedures, classes formerly labelled "A," "B," "C," "fleet," and "functional" have been redesignated. The new designations are: "R," recruit training; "A," apprentice training; "C," advanced training, which incorporates old Class "B" schools; "F," team and refresher training; "P," midshipman, officer candidate and newly commissioned officer training; "V," naval aviator or naval flight officer training; and "E," professional education programs which may lead to an academic degree. More information about the new designations is contained in OPNAV Notice 1500 of 4 Apr 1974. — CHINFO Newsgram, 20-74.

THE HEMATOLOGISTS' CORNER

The Non-Hodgkin's Lymphomas

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Traditionally, malignancies of the lymphoreticular system, the lymphomas, have been separated into four major groups: Hodgkin's disease, lymphosarcoma, reticulum cell sarcoma, and giant follicular lymphoma. Studies addressing the clinical and histopathologic subdivision of Hodgkin's disease have demonstrated the therapeutic and prognostic usefulness of such classification. Unfortunately this has not been true of the other major group — the non-Hodgkin's lymphomas. In the latter group the lack of commonly defined and generally accepted histologic terminology has led to chaos, confusion and controversy. Variations in the interpretation of the terms "lymphosarcoma" and "reticulum cell sarcoma" have limited valid comparisons of many studies from various institutions, to the extent that the terms have become meaningless.

In order to clarify and simplify the approach to these tumors, a system of classification of the non-Hodgkin's lymphomas proposed by Rappaport, Winter

and Hicks,¹ based on an earlier classification by Gall and Mallory,² and modified by others, was adopted. This classification is based on three main criteria:

(1) cell type; (2) degree of cellular differentiation; and (3) pattern of growth, whether nodular or diffuse. According to this classification (See Table 1) six cytologic types of non-Hodgkin's lymphoma are identified, and each is subdivided into diffuse and nodular forms. The term "giant follicular hyperplasia"

TABLE 1
CLASSIFICATION OF NON-HODGKIN'S LYMPHOMAS

NODULAR	DIFFUSE
Malignant lymphoma	undifferentiated, Burkitt's type
Malignant lymphoma	undifferentiated, pleomorphic type
Malignant lymphoma	histiocytic type
Malignant lymphoma	mixed histiocytic-lymphocytic type
Malignant lymphoma	lymphocytic, poorly differentiated type
Malignant lymphoma	lymphocytic, well differentiated type

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has been discarded by virtue of the recognition that nodularity is simply an architectural pattern.

It should be recognized that the histologic interpretation of lymphoid-tissue specimens can be difficult at times. To separate malignant lymphoma from pseudolymphomatous reaction, and follicular hyperplasia from nodular lymphoma is sometimes almost impossible. Meticulous specimen preparation is necessary, and when lymph nodes are biopsied they should, if possible, be obtained when the patients are free from other processes which might cause lymphoid change. Infectious mononucleosis, toxoplasmosis, cat-scratch fever, rheumatoid arthritis, and anticonvulsant drug therapy are among some of the causes of nodal alterations which closely simulate lymphoma histologically. It requires careful thought to select nodes for biopsy which will be the most likely to reveal specific histological information.

HISTOPATHOLOGY

The undifferentiated (or stem cell) lymphomas can be subdivided into Burkitt's type, and pleomorphic type. The Burkitt's type is composed of relatively uniform, medium size, undifferentiated lymphoreticular cells. Nuclei are immature and round to oval in shape, with delicate homogeneous chromatin. There are one or more, small, distinct nucleoli. Cytoplasm is slight to moderate in amount, and cellular borders are often indistinct. A "starry-sky" pattern is often seen because of the presence of scattered, large macrophages containing phagocytosed nuclear and cytoplasmic debris. The pleomorphic or undifferentiated lymphoma lacks the characteristic cellular uniformity seen in the Burkitt's type of lymphoma; the neoplastic cells range from 15 to 35 microns in diameter, and occasional giant cells are seen.

The cells of the histiocytic type of lymphoma are generally larger than those of the undifferentiated type. Nuclei are vesicular, large and oval, with prominent eosinophilic nucleoli. The finely granular cytoplasm is usually plentiful. Occasional cells contain phagocytosed material. A variant of histiocytic lymphoma has recently been reported³ which shows pronounced fibrosis and compartmentalization of neoplastic cells. It has been called malignant lymphoma, histiocytic type, with sclerosis. Another variant is the pleomorphic type, with marked nuclear and cytoplasmic variation in size and configuration. Double and triple nuclei are sometimes seen, often resembling Reed-Sternberg cells.

The mixed histiocytic-lymphocytic lymphomas are composed of approximately equal numbers of histiocytes

and lymphocytes, and usually have a nodular pattern. Rappaport¹ believes that most of these eventually differentiate into diffuse histiocytic lymphoma.

Malignant lymphomas of the lymphocytic type form a continuum, from well differentiated to poorly differentiated cells. The well differentiated tumors are composed of small to medium size lymphocytes, characteristically of uniform size, which are indistinguishable from normal lymphocytes. The poorly differentiated tumors consist of immature cells of variable size and shape, with relatively scanty cytoplasm. The nuclei are often irregular with frequent notches and clefts, and single distinct nucleoli.

ETIOLOGY

The most dramatic developments in the investigation of lymphoma etiology have occurred in the study of Burkitt's lymphoma. This tumor is endemic to tropical Africa and New Guinea, where it occurs chiefly in children; but it also occurs sporadically throughout the world, including the United States.^{4,6} In endemic areas the disease is characterized by climatic dependence, racial and tribal independence, and a direct relationship between increasing incidence and decreasing average patient age.⁷ Immigrants moving from nonendemic to endemic areas, both children and adults, develop the disease with relatively high frequency. These and other factors provide strong evidence for an environmental etiologic factor, more specifically, an insect-borne agent. There is some evidence to indicate that this agent may be a virus. The Epstein-Barr (EB) virus, though found in lymphoid tissue worldwide, is a logical candidate. A significant percentage of Burkitt's tumors contain the virus. Antibodies to the virus are found in higher titers in patients who have had the tumor, and in young children from endemic areas.⁷ Malaria may also play a role in the tumor development. Endemic areas for Burkitt's lymphoma are among the few areas in the world where malaria is endemic throughout the year, with over 75% incidence rates of parasitemia in infants and children. An etiologic hypothesis has been proposed by O'Connor⁸ as follows: malaria produces a profound antigenic stimulation, causing proliferation of immunoglobulin-producing cells of the lymphoreticular system. Requiring lymphoid cells for its replication, the EB virus localizes in these cells. Under the influence of both virus and malaria, lymphoid hyperplasia occurs and reaches a point at which it becomes independent of growth-limiting mechanisms of the host. In non-malaria areas another disease or process must be implicated as the cause of the lymphoreticular

hyperplasia, producing the milieu for viral replication and tumor growth.

The oncogenic effect of persistent immunologic stimulation has been demonstrated in animal models. In almost every form of human immunologic disease, lymphomas occur with increased frequency. The incidence of lymphoma is increased in organ-transplant recipients, and in patients receiving immunosuppressive therapy. Defects of both cell-mediated and humoral immune response are seen in high frequency in the lymphomas.⁹ It would appear that a relationship exists between dysfunction of the immune system and the development of lymphoma.

Though viruses have not been proven to cause any human malignancy it is widely held that certain tumors, including the lymphomas, may be virus induced.^{10,11} Viruses are the causative agents for a number of animal lymphomas. Thus far, only the EB virus has been isolated from human lymphomas. Virus-like particles are commonly seen by electron microscopy in normal human cells, and with higher frequency in leukemia and lymphoma cells. Intensive investigation is underway in this area.

Chromosomal abnormalities have been demonstrated in most of the lymphomas, but consistent patterns have not been found for any specific tumor type.¹²

Several families with an increased incidence of lymphomas have been reported, suggesting a role for genetic factors in the etiology of lymphoma.¹³

PATHOGENESIS AND CLINICAL FEATURES

Except for "giant follicular lymphoma" and well differentiated lymphocytic lymphoma, the non-Hodgkin's lymphomas are notorious for aggressive, unpredictable behavior and poor prognosis. Peters,¹⁴ and Jones, et al.,¹⁵ have shown that non-Hodgkin's lymphomas, Stages I-III_E, spread contiguously in a manner similar to that seen in Hodgkin's disease. In one series 81% of 92 patients with nodular lymphoma, and 90% of 95 patients with diffuse lymphoma presented contiguous nodal involvement.

Primary extranodal disease may be somewhat more capricious in its spread, though Peters has evidence for initial progression to sites within the tissue of origin, or to the regional nodes, in the majority of such cases. Extranodal disease tends to be more rapidly progressive than primary nodal disease.

Burkitt's lymphoma characteristically involves the abdominal nodes and viscera, and in Africa, the jaws.^{7,16} In one post-mortem series from Africa,¹⁷ 60% of cases had jaw involvement. The following

frequency of organ involvement was shown in children who were examined: kidney — 91%, adrenal — 77%, pancreatic — 57%; 75% of females had ovarian lesions. The preponderance of jaw involvement is lacking in the rare cases of Burkitt's lymphoma seen in the U.S., but the abdominal localization of tumor is otherwise similar. Peripheral lymph-node involvement is relatively rare.

Of the other non-Hodgkin's lymphomas, equal numbers originate in lymph nodes or in extranodal sites. The neck nodes represent the most frequent presenting site in patients with nodal primaries.¹⁴ Involvement of the mediastinum is relatively rare. Initial extranodal involvement occurs more often in lymphomas with the diffuse pattern than in those with the nodular pattern. The most frequent extranodal site of origin is the alimentary tract. Sites of less frequent origin are skin, bone, extradural space, lungs, bladder, and kidney. Virtually every tissue of the body has been reported to harbor the primary locus for lymphoma at one time or another.

The incidence of involvement of the gastrointestinal tract by non-Hodgkin's lymphomas is noted in a number of reports on large series of cases.^{18,21} The stomach and small intestine are the primary sites, and occur with equal frequency. In the small intestine the ileum is most commonly involved, correlating with the fact that lymphoid tissue is most abundant in this area. The colon is less frequently the site of primary origin. The most common histologic type is lymphocytic. Stomach lesions are most often diffuse and infiltrative, whereas intestinal lesions are most often polypoid. Ulcerations are common in both forms. Aneurysmal and constrictive lesions are sometimes seen.

Bone-marrow involvement is quite rare in patients with clinical Stage I and II disease. It is also unusual in histiocytic and Burkitt's lymphomas.^{22,24} On the other hand, it is frequently encountered in those with clinical Stage III or IV disease. One study²⁵ demonstrated that 23% and 30% of Stage III or IV patients with nodular-mixed, and diffuse-mixed lymphomas, respectively, had marrow involvement. Involvement was also demonstrated in 45% of patients with lymphocytic lymphomas, with both well and poorly differentiated cell types. There was no correlation between marrow involvement and nodular or diffuse patterns, yet the leukemic phase tends to develop earlier in diffuse lymphomas than in nodular lymphomas. Marrow involvement does not inevitably lead to leukemia.

A leukemic phase develops in most of the lymphomas with variable frequency.^{26,28} Morphologic patterns of chronic lymphocytic leukemia or lymphosarcoma cell leukemia may be seen. The rarely seen leukemic

phase of histiocytic lymphoma is called histiocytic leukemia. The Schilling type of monocytic leukemia may sometimes be seen as a variant of the leukemic phase of histiocytic lymphoma.

Except for the Burkitt's type of lymphoma, only very modest data is available regarding the mode and rapidity of spread of specific tumor types. Characteristic anatomic distributions have not been defined for the individual lymphomas. It is likely that with the accumulation of data from prospective studies utilizing a common system of classification, associations will be made between cytologic types of lymphoma, histologic pattern, anatomic distribution, and the development of leukemia.

Aside from the Burkitt's type, lymphomas are primarily diseases of middle and old age. There is a rapid increase in incidence of the disease after age 50. There is no preponderance of the disease in one sex.

In the Stanford series of non-Hodgkin's lymphomas,¹⁵ 39% had Stage IV disease at the time of diagnosis. A slight majority of these were diffuse rather than nodular in pattern, 56% as compared to 44%. Thirty-seven percent were relatively well localized (Stage I-II_E).

Clinical manifestations vary substantially, ranging from an asymptomatic state through slowly progressive disability, to acute fulminating illness. Painless node enlargement is the presenting sign in almost one-half of patients.

Clinical findings in gastrointestinal lymphomas do not differ greatly from those of other gastrointestinal neoplasms. Most patients experience abdominal pain, weight loss, melena, nausea, and vomiting. Palpable abdominal masses are frequent. Less common complaints are diarrhea, hematemesis, and constipation.

Malabsorption syndrome occurring with gastrointestinal lymphomas is reported fairly frequently,^{19,29,30} though it occurs in a relatively small percentage of tumors and can be present for years before lymphoma is discovered. Several investigators have reported that 5-10% of cases of malabsorption develop lymphomas.^{30,31} Abdominal pain, weight loss, elevation of the erythrocyte sedimentation rate (ESR), diarrhea, and fever, occurring in a previously well controlled patient with malabsorption, should prompt a clinical search for lymphoma.¹⁹ In some cases lymphoma is apparently responsible for the development of malabsorption. The mechanism is unclear, but it is likely due to lymphatic obstruction or mucosal infiltration. Lymphomas of the stomach and colon are demonstrable by X-ray studies in about 80% of cases. In small intestinal lymphomas, only 30% are demonstrable.

Leptomeningitis is a rare complication which occurs

in advanced lymphomas. In a reported series of 21 patients,³² 16 had histiocytic type lymphomas. Prognosis is grave when leptomeningitis develops. Cerebral tumors and spinal cord compression are other complications.

A host of signs and symptoms may be produced by lesions situated in various organs, by pressure or infiltration, or by vessel or duct obstruction. Among these are included the superior vena cava syndrome, urinary tract obstruction, edema, thrombophlebitis, and bone pain. Immunologic incompetence may develop with advanced disease, leading to increased susceptibility to infections of all kinds.

Systemic symptoms such as malaise, fever, sweating, anorexia, and weight loss occur with less frequency than in Hodgkin's disease, and tend to correlate with the extent of disease. Few patients in the early stages have such complaints. Almost one-third of Stage IV patients present systemic symptoms.

Anemia usually develops as disease progresses and may be due to marrow invasion, blood loss, or hemolysis. A Coombs' positive hemolytic anemia can occur at times. Splenic enlargement may lead to decreased red cell survival, neutropenia, and thrombocytopenia.

Serum protein electrophoresis may demonstrate monoclonal immunoglobulin spikes in advanced states of disease.³³ Such elevations occurred in 4.5% of a large group, in one reported series.³⁴ Two-thirds of these proteins were IgM. These protein abnormalities generally occurred in patients with diffuse lymphomas of various cytologic types, and occurred at a higher frequency than that of the normal population. IgG peaks occurred with an incidence not much greater than that of the normal population. IgA peaks were not seen in this series, but have been reported. Bence-Jones proteins are occasionally found.

The processes of diagnosis and staging of the non-Hodgkin's lymphomas are for the most part exactly like those of Hodgkin's disease. The success of staging laparotomies in Hodgkin's disease has prompted study of the value of this procedure in the non-Hodgkin's lymphomas. Preliminary data would tend to support a more restricted use of this procedure than is exercised in Hodgkin's disease.³⁵

THERAPY AND PROGNOSIS

Radiotherapy has long been used in the clinical management of the lymphomas; since the advent of megavoltage radiation equipment it has become continually more aggressive. It is the only mode of therapy given with curative intent. Curative therapy

is usually felt to require at least 3500 rads directed to the areas of tumor involvement. Palliative therapy is given for symptomatic or localized relief, when life expectancy and clinical condition do not justify intensive therapy. Irradiation with curative intent is commonly held to be the therapy of choice for patients with Stage I to II_E disease. Many feel it should be given through Stage III_E. Irradiation has generally been directed to involved fields only, though total nodal therapy is being given with increasing frequency. Extended field therapy has been shown to provide no added benefit over involved-field therapy in terms of increased survival.¹⁴

Even with radiotherapy, long-term survival has been relatively poor for all but localized disease. Patients with nodular type lymphoma tend to live longer than those who present diffuse patterns. Those with lymphocytic lymphoma, particularly the well differentiated type, tend to live longer than those with histiocytic and undifferentiated lymphomas. In the early 1960s, five-year survival rates of 50% were reported for patients with Stage I disease treated with radiotherapy.^{36,37} In 1968 Peters¹⁴ published survival figures for a large group of patients treated with radiation by various methods. The five-year survival rate for lymphosarcoma was: Stage I, 70%; Stage II, 50%; Stage III, 30%; and Stage IV, 2%. Patients with Stage I reticulum cell sarcoma had a 60% five-year survival rate. Of Stage II patients, only 5% lived five years. Higher survival rates have been reported recently, probably reflecting the use of more thorough staging procedures.³⁸

Even higher remission rates are reported for lymphomas of all types and stages, but relapses occur rapidly in substantial numbers of all but Stage I cases. A recent paper from Stanford³⁹ addressing the results of radiotherapy, reports that relapse rates were unacceptably high for patients with greater than Stage I disease of any histologic type, who received high-dose extended or involved field radiotherapy. Relapse rates for the various types of lymphoma ranged from 19% to 65% in the first year after therapy. Relapse was relatively rare in Stage I patients, and it was found that the rate remained low if the patient did not relapse during the first year following therapy.

Johnson has studied the effects of more radical therapy.^{40,42} He reported a 93% complete remission rate in a group of 29 previously untreated patients with Stage III and Stage IV lymphocytic lymphoma (by virtue of bone marrow involvement). These patients were treated with total nodal irradiation or "total body irradiation." The latter consisted of 10 rads of whole-body irradiation delivered on three to five days per

week, to direct a total dose of 100-300 rads. The median period of unmaintained remission for these patients was 26 months. While these results are impressive it should be noted that a majority of the patients had nodal lymphoma, 25% of which were well differentiated — both favorable prognostic factors. Patients with Stage IV disease and visceral involvement did poorly when treated in this manner.

A sizeable group of drugs has been found to be therapeutically effective in the lymphomas.^{28,45,46} Though many methods of treatment have evolved by trial and error, the study of the kinetics of malignant cells and the cell cycle specificity of the various drugs has made it possible to devise logical regimens of drug combinations, dosage, and sequence of administration. The commonly available drugs are the alkylating agents: nitrogen mustard, cyclophosphamide, and chlorambucil; the vinca alkaloids: vinblastine and vincristine; adrenocorticosteroids; procarbazine; cytosine arabinoside; bleomycin; and streptonigrin. Among investigational drugs are the nitrosourea derivatives: BCNU, CCNU and methyl-CCNU; and adriamycin. Combination chemotherapy has in general proved superior to single-agent therapy in producing remission.^{47,48} The combination of cyclophosphamide, vincristine, and prednisone has been successful with reported remissions of 80 to 100%, up to 70% being complete remissions.^{49,50} Remission duration is usually measured in months. If chronic drug administration (maintenance therapy) is given, remissions last longer. Several cooperative-study groups are presently engaged in prospective, randomized, long-term studies evaluating many combinations of drugs administered in variable dosages and time sequences. Courses of radiotherapy are often included in these studies. Only with data analysis on the basis of such studies can optimal therapy be achieved.

The therapy of Burkitt's lymphoma has differed from that of the other lymphomas, in that radiation therapy has generally not been available in endemic areas. These lymphomas usually present dramatic initial responses to chemotherapy.^{51,52} Many drugs have been used singly and in combination, and almost all produce similar initial responses. Though long-term results are difficult to evaluate because of poor follow-up data, it appears that those patients with localized disease tend to have long remission periods.⁵³

If relapse does not occur within the first year after treatment, it then rarely occurs.⁵⁴ If relapse does occur, then the incidence of a second remission remains high. Patients with advanced disease tend to have frequent relapses and poor prognoses.

SUMMARY

Reclassification of the non-Hodgkin's malignant lymphomas according to cytologic and architectural patterns is leading to a clearer understanding of the pathogenesis, natural course, and prognosis of these disorders. The Burkitt's lymphoma appears to have a unique pattern of distribution and prognosis, associated with a very favorable response to therapeutic modalities. Staging procedures similar to those in the evaluation of Hodgkin's disease have led to a more rational application of surgery, radiotherapy, and chemotherapy in the individual management of these patients.

Stage III or IV disease states are showing impressive response rates to combination chemotherapeutic regimens — these response rates being associated with prolongation of life, both quantitative and qualitative. This improvement in therapeutic modalities has come about through the investigational efforts of cooperative groups, such as the Acute Leukemia Group B, the Eastern Cooperative Oncology Group, and others, as well as large medical centers involved in the treatment of malignant disorders. In order to continue to improve primary patient care and bring about a better understanding of these disorders, it is of paramount importance that each physician involved in the care of these patients give careful consideration to referring such cases to a cancer center, or entering them into an approved investigational protocol for the treatment of lymphomas if this treatment is available in the geographic location of the patient's home or family.

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Navy Physicians Speak at Aerospace Medical Meeting

Planning, programing, validating requirements, and competing for resources are responsibilities assigned to the Operational Medical Support Office (Code 5) which will soon be established at the Bureau of Medicine and



HEADS NEW CODE.—RADM Charles L. Waite, MC, USN describes the responsibilities of the soon-to-be-established Operational Medical Support Division (Code 5), which he will head. RADM Waite was guest speaker at the Naval Aviation Medicine Luncheon, held during the 45th Annual Scientific Meeting of the Aerospace Medical Association.

Surgery, RADM Charles L. Waite, MC, USN reported at the 45th Annual Scientific Meeting of the Aerospace Medical Association. The meeting was held in Washington, D.C., 6-9 May 1974.

"The key thrust of this new code will be to vigorously and fairly represent the requirements of the Navy and Marine Corps operational community in our headquarters," RADM Waite told approximately 130 naval

flight surgeons who attended the Naval Aviation Medicine Luncheon, which was held during the meeting.

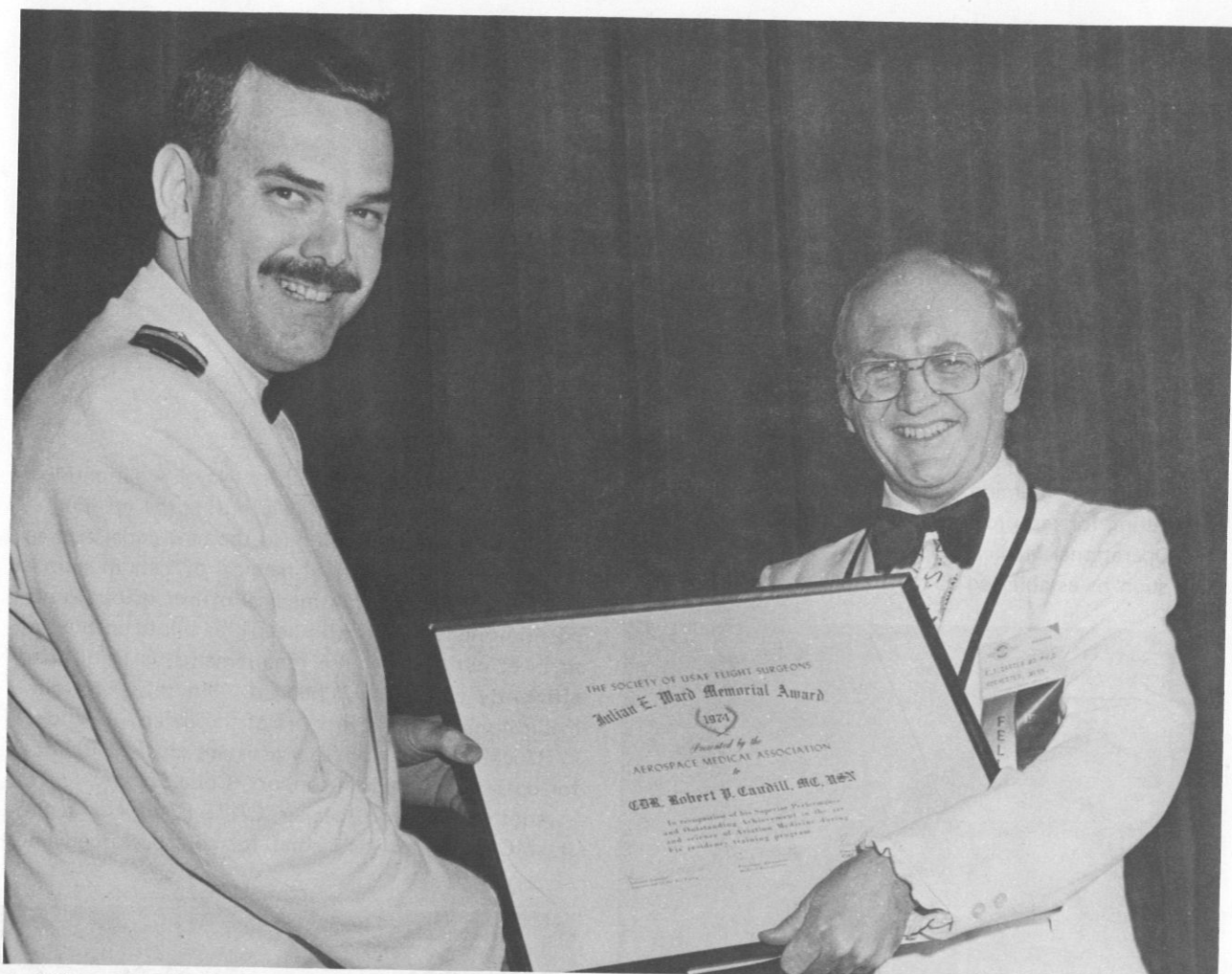
RADM Waite, who will head the new code, also addressed the efficient use of medical officers in support of operating forces. "A medical officer whose job is mission oriented, and who keeps his pilots on the line to meet national defense requirements, *is* being used efficiently and wisely," he said. "In this sense our medical mission is in support of the defense mission."

RADM Waite is currently assistant chief of BUMED for operational medical support (Code 8).

Another luncheon speaker, CAPT Frank H. Austin, Jr., MC, USN, assistant chief for aerospace medicine,



PREDICTS FUTURE.—At the Naval Aviation Medicine Luncheon, held during the 45th Annual Scientific Meeting of the Aerospace Medicine Association, CAPT Frank H. Austin, Jr., MC, USN describes Navy aerospace-medicine programs of the future. CAPT Austin also spoke at a scientific session on flight safety, describing the aircraft escape and survival experiences of Navy prisoners of war.



OUTSTANDING RESIDENT.—CDR Robert P. Caudill, Jr., MC, USN (left) receives the Julian E. Ward Memorial Award for superior performance and outstanding achievement in aerospace medicine during residency training. Earl T. Carter, M.D. (right), president of the Aerospace Medical Association, presented the award.

discussed "Navy Aerospace Medicine Programs of the Future." While reaffirming that primary health care delivery would remain a vital mission of Navy flight surgeons, Dr. Austin said that "our priority will be the delivery of 'total health care' to operational forces first," in order to assure aircrew operational safety and effectiveness. This support should include increased flight surgeon participation in accident prevention programs and continued involvement in aviation accident investigations, Dr. Austin observed.

CAPT Austin also said there was a need for:

- A forceful restatement of the policies and doctrines which direct operational aeromedical support
- Establishment of a field organizational structure within which all aeromedical personnel can work effectively
- Reexamination of flight surgeon education and

training to assure accomplishment of the mission, career satisfaction, and professional fulfillment

CAPT Austin predicted greater use of the multidisciplinary team approach in aviation medicine. "The aerospace physiologist and aerospace psychologist, working with the flight surgeon as a team in the operational as well as in the research and development environment, should lead to more effective programs with optimum utilization of each specialist's talents," Dr. Austin said.

CAPT Austin was also a featured speaker in one of two scientific sessions on flight safety. During his presentation on the aircraft escape and survival experiences of Navy prisoners of war, Dr. Austin reported that aircraft speed at the time of pilot ejection was "undoubtedly a principal causative factor in the high number and types of POW ejection injuries."

CAPT Austin noted that almost all of 102 former

Navy POWs who responded to a questionnaire were forced into emergency ejection within seconds of initial aircraft damage, often while situated in less than optimum ejection positions. "At the time of escape almost half of the aircraft were rolling, tumbling, or spinning," Dr. Austin said. "One-tenth were in some stage of disintegration."

Of the 52% of POWs who sustained major injury before capture, most were injured during ejection, Dr. Austin reported. Only 29% of 104 Navy fliers who were rescued after ejection had sustained major injuries.

Dr. Austin commented that landing injuries among POWs were fewer than might have been expected, because many of the men landed in soft rice paddies. Only about 10% of the POWs came down in deep water; they therefore did not experience the severe parachute-entanglement problems frequently reported by rescued fliers, 73% of whom landed in the water.

Escape and evasion efforts were frequently negated by immediate capture or serious injuries. Two-thirds of the POWs were captured within ten minutes, and almost 95% were captured within an hour of their ejection.

Many of the downed fliers had problems with their survival equipment, or needed equipment they did not have with them. Dr. Austin recommended that these inadequacies be considered in the design of new equipment and procedures.

Coauthors of the paper presented by CAPT Austin were Martin G. Every and James F. Parker, Jr., Ph.D., of BioTechnology Inc., Falls Church, Va.

NAVY PERSONNEL HONORED

At the Honors Night reception and banquet which climaxed the meeting, two Navy flight surgeons were cited for their achievements in aviation medicine.

CDR Robert P. Caudill, Jr., MC, USN received the Julian E. Ward Memorial Award for superior performance and outstanding achievement in aerospace medicine during residency training. The award was established by the Society of USAF Flight Surgeons in memory of the first Society member to lose his life in an aircraft accident. The award also honors all flight surgeons whose lives are sacrificed in the pursuit of flying activities related to the practice of aerospace medicine.

CDR Caudill is senior medical officer of the precommissioning unit that is guiding and directing the creation of medical spaces in the nuclear-powered aircraft carrier USS *Nimitz*. Now under construction at Newport

News, Va., the *Nimitz* will be manned and equipped to provide full medical and surgical capabilities in support of as many as 6,100 people, including the air wing. CDR Caudill is responsible for monitoring the medical aspects of construction of the carrier medical department, and for organizing the medical department functional and training plans in preparation for arrival of the full crew. He also provides care to military personnel assigned to the shipyard.

A native of Louisville, Ky., CDR Caudill received his B.A. degree from Wake Forest College in 1958, his M.D. degree from the University of Tennessee College of Medicine in 1963, and his M.P.H. degree from Tulane University School of Public Health and Tropical Medicine in 1971. He acquired his internship training at Naval Hospital St. Albans, N.Y.

Dr. Caudill has also served as a flight surgeon at NAS Kingsville, Tex., and as senior medical officer in the USS *Ticonderoga* and USS *Bon Homme Richard*.

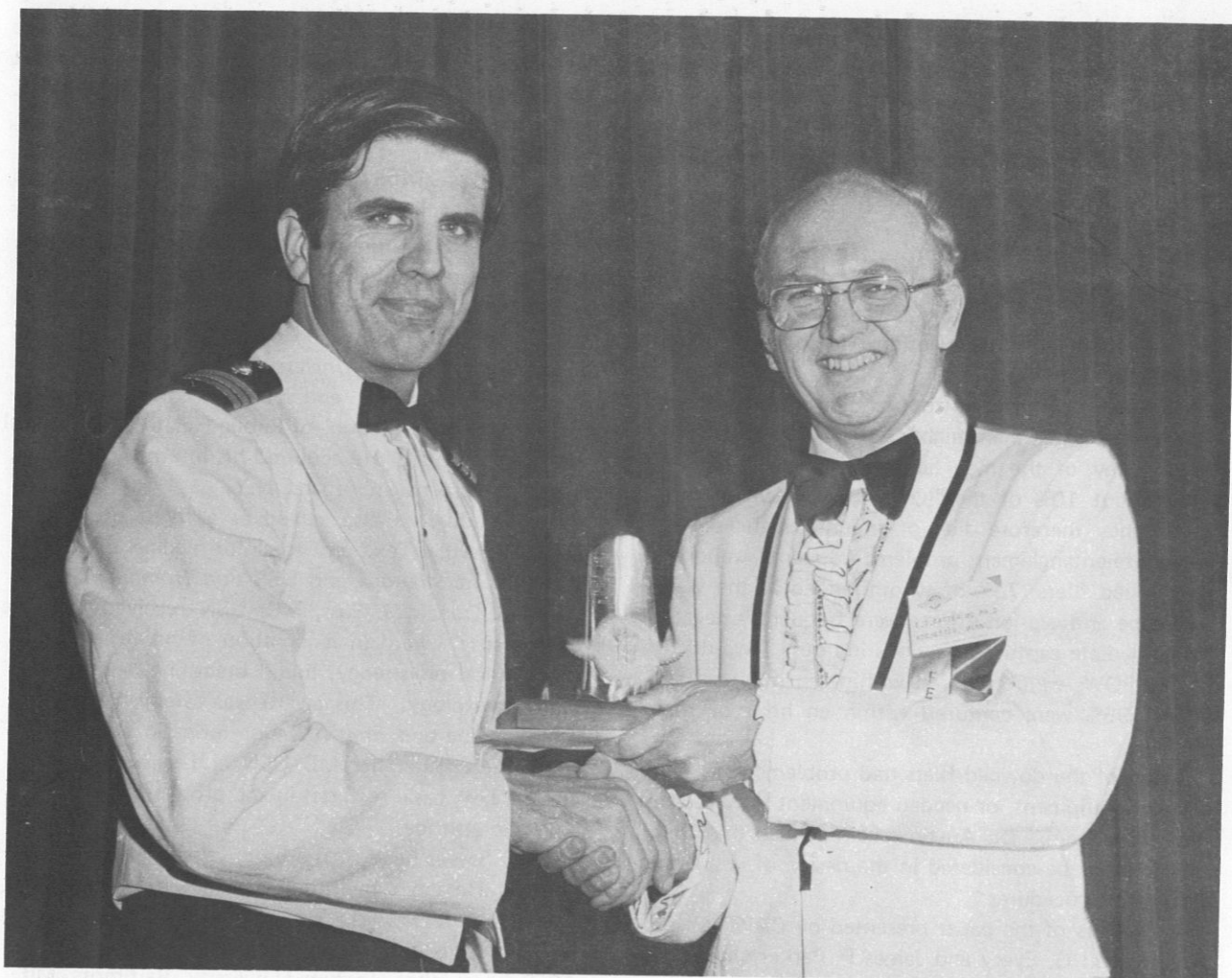
CDR Donald J. Sass, MC, USN received the Eric Liljencrantz Award in recognition of his research in acceleration physiology, liquid breathing, and hyperbaric physiology. This award was established by the Smith, Kline and French Laboratories in memory of CDR Eric Liljencrantz, MC, USN, and is given annually for the best basic research in the problems of acceleration and altitude.

CDR Sass is head of the biophysics division, Naval Medical Research Institute, National Naval Medical Center, Bethesda, Md. He received his B.S. degree in 1955, and his M.S. degree in electrical engineering in 1957 from Johns Hopkins University, Baltimore, Md. He subsequently completed a fellowship in medical electronics at Stanford University. In 1964 he received his M.D. degree from Stanford University School of Medicine.

Before entering medical school, CDR Sass was senior engineer at the Martin Company in Baltimore, Md. He worked as a senior research engineer at Lockheed Aircraft Company while he was a medical student.

After completing his internship at Naval Hospital Bethesda, Md., Dr. Sass joined the staff of the Vibration Laboratory at the Naval Medical Research Institute. In 1972 he completed a four-year fellowship in cardiopulmonary physiology at the Mayo Graduate School of Medicine. CDR Sass is a member of the Aerospace Medical Association and the Undersea Medical Society.

Three Navy officers were elected Fellows of the Aerospace Medical Association during the meeting: CAPT Michael Carver, MC, USN; CDR Joseph A. Pursch, MC, USN; and LCDR Donald H. Reid, MSC, USN. CAPT Frank H. Austin, Jr., MC, USN was elected to



RESEARCH AWARD.—Earl T. Carter, M.D., Ph.D., (right), president of the Aerospace Medical Association, presents the Eric Liljencrantz Award to recipient CDR Donald J. Sass, MC, USN. Dr. Sass received the award in recognition of his research in acceleration physiology, liquid breathing, and hyperbaric physiology.

the office of First Vice President of the Aerospace Medical Association.

Over 2,000 aeromedical specialists participated in the four-day meeting. Approximately 110 papers were delivered, reporting recent developments in clinical, operational, and research medicine. Tutorial sessions

and panel discussions were interspersed throughout the program, with a symposium on medical aspects of the second manned Skylab mission featured on the final day.

The 46th Annual Scientific Meeting of the Aerospace Medical Association will be held in San Francisco, Calif., 28 Apr- 1 May 1975. ☸

BROCHURES DESCRIBE NLM SERVICES

The programs and services of the National Library of Medicine are described in the following brochures: The National Library of Medicine (general information) ; MEDLINE (questions and answers about the system); MEDLINE Users' Guide; The NLM Grants Program; The National Library of Medicine Programs and Services (Annual Report); and the Toxicology Information Program.

Single copies of these brochures are available without charge from: Office of Inquiries, National Library of Medicine, 8600 Rockville Pike, Bethesda, Md. 20014. Include a self-addressed mailing label (no postage necessary) with your request. — *National Library of Medicine News*, Vol. XXIX, No. 2-3, Supplement, Feb-Mar 1974. ☸

SCHOLARS' SCUTTLEBUTT



RESEARCH-CLERKSHIP BILLETS

One of the most important parts of a medical student's education and training is the time spent in clinical clerkships. The clerkship provides the student with an opportunity to apply his developing fund of medical knowledge in a patient-care setting, under the supervision of experienced physicians who can assist him in the complex integration of fact and application.

In the establishment of the Armed Forces Health Professions Scholarships, Congress recognized the benefit to the student, and to the Navy of gaining at least part of this experience in the environment of the Navy's health-care-delivery system. This experience, in addition to furthering the student's rapidly expanding clinical maturation, will help to orient him or her in the administrative and military aspects of the system in which he or she will operate in the future.

To accommodate this greatly expanded requirement for increased clerkships, Congress has authorized sufficient funds under PL92-426 to allow a period of 45 days' active duty during each year of a student's participation in the scholarship program. Similarly, the Navy Medical Department has greatly expanded its number of available clerkship programs throughout the naval hospitals. It is recognized that many students, due to the strict scheduling and curriculum requirements of their respective schools, may not be able to avail themselves of this opportunity each year. When

necessary, students will be authorized to spend their 45 days of active duty at their respective schools of medicine and osteopathy, in lieu of a clerkship in a naval facility.

In order to better match requests, educational levels and availability of positions, and at the same time conserve travel funds, clerkship assignments will be based on priorities consistent with levels of training. First- and second-year students will ordinarily be given clerkship assignments in research activities and nonmajor-graduate-training hospitals, wherever possible, in the geographical area of their school or university. Clerkships for third- and fourth-year students will ordinarily be available at major-graduate-training facilities.

In addition to clerkships in naval hospitals and research units, a shipboard-orientation program has been implemented. This program allows a scholarship

TABLE I

Facilities With Available Research-Clerkship Billets

Navy Medical Research Unit (NMRU) No. 1, Berkeley, Calif.

Naval Medical Research Institute (NMRI), National Naval Medical Center (NNMC), Bethesda, Md.

Armed Forces Radiobiology Research Institute (AFRRI), Bethesda, Md.

Navy Toxicology Unit, Bethesda, Md.

Navy Blood Research Laboratory, Chelsea, Mass.

Medical Field Research Laboratory, Camp Lejeune, N.C.

Naval Submarine Medical Research Laboratory, Groton, Conn.

Navy Air Development Center (Aerospace Crew Equipment Department), Johnsville, Warminster, Pa.

Aviation Physiology Training Department, Naval Air Station (NAS), Norfolk, Va.

Naval Safety Center, Naval Air Station (NAS), Norfolk, Va.

Navy Preventive Medicine Unit (NPMU) No. 2, Naval Base, Norfolk, Va.

Naval Regional Medical Center (NRMC), Oakland, Calif.

Naval Aerospace Medical Institute (NAMI), Naval Aerospace Regional Medical Center (NARMC), Pensacola, Fla.

Navy Medical Neuropsychiatric Research Unit, San Diego, Calif.

Navy Experimental Diving Unit (NEDU), Washington, D.C.

student the opportunity to spend an active-duty period assigned to a fleet unit. Besides gaining a broad understanding of the problems of shipboard medicine a student will actively participate in the entire gamut of a ship's activities, thus gaining an understanding of the operational Navy. At present, plans are being developed to implement a full 45-day military indoctrination program at the Navy's Indoctrination School at Newport, Rhode Island.

In planning for an active duty clerkship during the coming year, students should be cautioned not to plan on taking dependents with them unless they have adequate financial resources to provide for their support. Dependents may not be accommodated in Bachelor Officers Quarters, and the authorized per-diem allowance is seldom sufficient for their maintenance.

For the convenience of first- and second-year students, the facilities where available research-clerkship billets are located are listed in Table I.

All inquiries regarding clerkship assignments should be addressed to:

Department of the Navy
Bureau of Medicine and Surgery (Code 3174)
Washington, D.C. 20372

U.S. NAVY MEDICINE SUBSCRIPTIONS

Complimentary subscriptions to this publication are now offered to Navy-affiliated medical students,

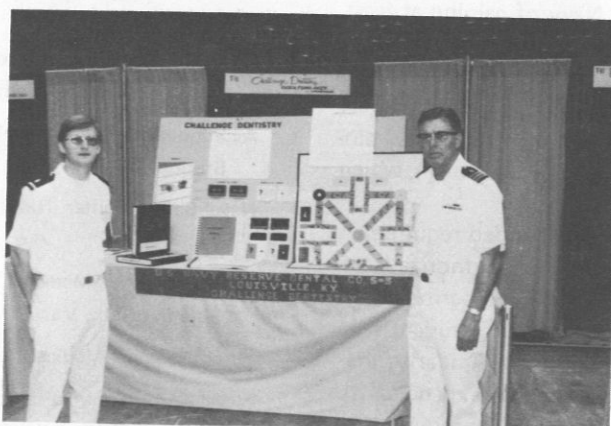
reflecting an increased effort being made by the Navy to contact and communicate with potential naval medical officers. Comments and contributions to this journal are always welcomed by the editor.

By now we should have mailed to all students an explanatory letter, indicating the particular contact point for regular monthly receipt of this magazine at each specific medical school. At most schools the distribution source is the office of the Dean of Students, or the Librarian, or the Commandant's Representative. Due to the mailing costs, and frequent changes in address and location that medical students present, we prefer to deliver a bulk shipment of monthly issues to one specific contact point at each school. We are especially indebted to the numerous medical schools which have indicated a willingness to assist in the circulation of this publication, and hope that the students will cooperate in the venture by picking up their monthly copies in a timely fashion.

We ask for your assistance in spreading the word to your fellow students. If anyone has been overlooked, or is encountering difficulty in obtaining *U.S. NAVY MEDICINE*, help us to correct the oversight. Acquaint underclassmen who join the program each year with the system at your school. Report distribution problems to:

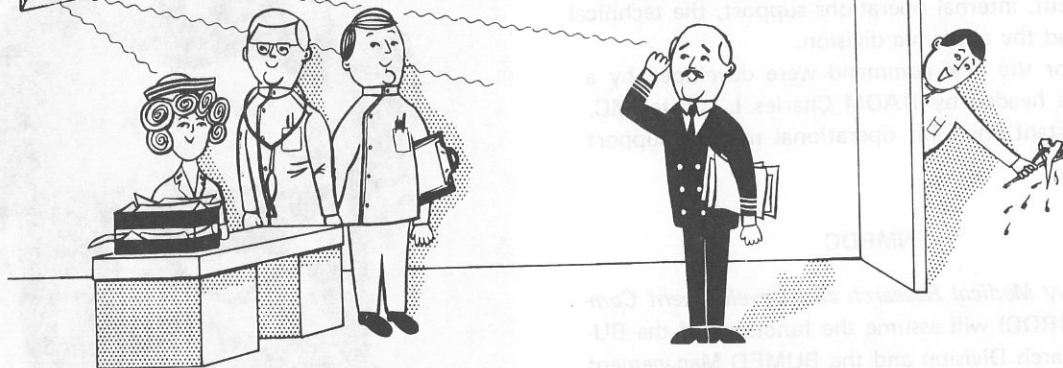
U.S. NAVY MEDICINE
Department of the Navy
Bureau of Medicine and Surgery (Code 18)
Washington, D.C. 20372

DENTAL COMPANY COMES IN FIRST



PRIZE-WINNING CLINIC.—CDR W.E. Stucker, DC, USNR-R (right), CO, U.S. Naval Reserve Dental Company 5-5, Louisville, Ky., and ENS Frank Aker, DC, USNR (left) exhibit the table clinic that won first place at state dental conventions in Ohio, Kentucky, and Indiana. ENS Aker planned and designed the award-winning clinic. — PAO, U.S. Naval Reserve Dental Co. 5-5. (Photo by courtesy of Dr. Jack Carr, official photographer for the Indiana Dental Association.)

Notes and Announcements



NAVY MEDICAL DEPARTMENT ESTABLISHES NEW COMMANDS

Two new commands — one for training and education, and the other for research and development — were established in the Navy Medical Department, effective 1 July 1974.

HSETC

The *Health Sciences Education and Training Command* (HSETC) was established to consolidate all Navy Medical Department training and education programs under the control of one director. Headquartered at the National Navy Medical Center (NNMC), Bethesda, Md., the new command is headed by CAPT J. William Cox, MC, USN, who is also director of Medical Department education and training at the Bureau of Medicine and Surgery. CAPT Cox was formerly commanding officer of the Naval Medical Training Institute, which the HSETC replaces.

The new command, which will oversee more than 300 teaching and training programs for Medical Department personnel, has the following subordinate activities and detachments:

- Naval Hospital Corps Schools, San Diego, Calif., and Great Lakes, Ill.
- Enlisted Training Service, NAVREGMEDCEN, Portsmouth, Va.
- Dental "A" and "C" Schools, Naval Dental Center, San Diego.
- Naval School of Health Care Administration, NNMC, Bethesda, Md.
- Naval Aerospace Medical Institute, NAVAEROSP-REGMEDCEN, Pensacola, Fla.
- Naval Undersea Medical Institute, NAVSUBMEDCEN, Groton, Conn.

The HSETC has three departments: Professional Directorate, Educational Programs Development Department, and Administrative Department.

The Professional Directorate is staffed by a representative from each Medical Department Corps, who monitors his Corps' individual needs. A clinical investigation program director is also included in this directorate.

The Educational Programs Development Department has two divisions: Curriculum, Correspondence



HEADS EDUCATION AND TRAINING.—CAPT J. William Cox, MC, USN is head of the newly established Health Sciences Education and Training Command (HSETC). The new command will oversee more than 300 teaching and training programs for Medical Department personnel.

Training, and Education Research Division; and the Media Division.

The Administrative Department includes resources management, internal operations support, the technical library, and the academic division.

Plans for the new command were developed by a committee headed by RADM Charles L. Waite, MC, USN, assistant chief for operational medical support at BUMED.

NMRDC

The *Navy Medical Research and Development Command* (NMRDC) will assume the functions of the BUMED Research Division and the BUMED Management Support Department of the Naval Medical Research Institute, NNMC, Bethesda, Md. The new command will manage all Navy Medical Department research, development, test, and evaluation (RDT&E) programs concerned with the health, safety, and performance of naval personnel.

Commanding officer of the NMRDC is CAPT Charles E. Brodine, MC, USN, who also serves as special assistant for research and development to the Surgeon General. The command will be headquartered at NNMC.

The functions of the NMRDC are to:

- Command Medical Department research and development laboratories, providing necessary personnel, funds, and facilities
- Direct, plan, program, budget, and document Medical Department RDT&E efforts in health sciences and technology, manpower effectiveness, and operational medical and dental support systems
- Determine requirements for, and qualifications of research and development personnel; and recommend procurement, training, and assignment of these personnel
- Perform RDT&E staff functions for the Surgeon General
- Provide medical and dental guidance, and assistance to the Navy and Marine Corps on RDT&E aspects of weapons systems, life support systems, and personnel protection
- Coordinate Medical Department research with other Navy bureaus and offices, government agencies, civilian organizations, and foreign governments

The following facilities come under the new command: Naval Aerospace Medical Research Laboratory, Pensacola, Fla.; Naval Dental Research Institute, Great Lakes, Ill.; Naval Medical Field Research Laboratory, Camp Lejeune, N.C.; Naval Submarine Medical Research Laboratory, Groton, Conn.; Naval Medical Research Institute, NNMC, Bethesda, Md.; Naval Medical Neuro-



HEADS RESEARCH AND DEVELOPMENT.—CAPT Charles E. Brodine, MC, USN is head of the new Navy Medical Research and Development Command (NMRDC), which manages all Navy Medical Department research, development, test and evaluation programs concerned with the health, safety, and performance of naval personnel.

psychiatric Research Unit, San Diego, Calif.; Naval Medical Research Unit (NAMRU) No. 3, Cairo, Arab Republic of Egypt; NAMRU No. 2, Taipei, Republic of China, and its detachment in Jakarta, Indonesia; NAMRU No. 5, Addis Ababa, Ethiopia; Naval Blood Research Laboratory, Chelsea, Mass.; and Naval Unit, Fort Detrick, Frederick, Md.

The new NMRDC includes the following major components:

- The Office of the Comptroller, which will oversee fiscal programming and budgeting, accounting and systems review, and materiel and supply branches
- The Office of the Director of Manpower and Facilities Management, which will have a facilities management division, as well as military and civilian manpower-management divisions
- The Office of the Director of Programs and Scientific Adviser, which will, through a number of divisions, monitor the following programs:

Submarine and Diving Medicine Program, which is concerned with research and development of medical problems peculiar to submarine and diving environments. This program provides the biomedical knowledge

necessary for the safe support of deep submergence operations, and the attainment of specific underwater operational goals.

Air Crew Systems Biomedical Support Program, which includes research and development efforts directed toward medical problems encountered in aviation physiology, impact injury prevention, protection against high-G forces, the human factors in aircraft design, and the prevention and treatment of illness in naval aircrewmembers

Fleet Health Care Systems Program, which encompasses research and development of shipboard and field medical- and dental-facility design, patient evacuation vehicles, remote medical diagnosis systems, determination of health patterns in naval populations to estimate requirements for the health-care system, and other efforts concerned with the efficient delivery of health care to personnel engaged in fleet operations

Human Performance Program, which is concerned with research and development projects addressing human behavior and performance effectiveness in operations systems and environments of naval service. Such projects include studies of the measurement and prediction of human performance under operational stresses of naval systems, from which to develop human factors criteria for selection, training, engineering, and work procedures; and research on the behavioral and psychological aspects of health and safety, from which to develop criteria for medical screening and safety standards.

Trauma Care Program, which is directed toward the development of an improved trauma-care system to reduce losses from combat injuries. Program projects include the development of improved capability for initial care and management of severely injured casualties; the development of a frozen-blood-component system for shipboard and field use; and the development of improved capability for reconstructive surgery and transplantation of body components.

Infectious Diseases Program, which is concerned with research and development of the immunology, prevention, treatment, and control of infectious diseases. Research projects include the development and testing of vaccines against viral, bacterial, parasitic, and rickettsial diseases; etiologic and epidemiologic studies; disease vector control technology; chemotherapy; and prophylaxis.

Fleet Occupational Health Program, which researches occupational hazards of clinical, physical, and biologic stresses in operational environments (including heat, noise, vibration, and atmospheric con-

taminants), to determine human-exposure limits and develop effective measures for personnel protection

Dental Health Program, which includes research and development efforts directed toward oral disease, hazards protection, delivery of dental care, and repair of maxillofacial injury.

An Information Services Division and a Program Documents Branch also come under the organizational responsibility of the Director of Programs and Scientific Adviser.

A research planning board will advise the NMRDC commanding officer; he will also be assisted by an executive assistant and a command master chief. 🍀

BACK PAY TO BEGIN

The Department of Defense has authorized the Navy to begin payment on 8 July of a retroactive pay raise. The Federal pay raise was due to take effect 1 Oct 1972 but was delayed by Executive order until 1 Jan 1973. A U.S. Court of Appeals reversed that decision last January, and on 8 June the President signed into law an act authorizing the funding of the back pay. As a result, Federal employees and military personnel who were receiving Federal pay during the period 1 Oct 1972-1 Jan 1973 will receive some back pay. According to the Navy Comptroller, payments to most Navy personnel on active duty should be completed by the first of August.

Active-duty and retired Navy personnel who were on active duty during the three-month period, and whose pay status did not change (by reenlistment, payment for unused leave, etc.) during that period, can expect their back pay sooner than other personnel. Personnel who separated from the service after 1 Oct 72, Reserve members who served on active duty during the three-month period, and eligible Navy people who separate from the service between now and the date payments have been completed will be required to file claims to receive their back pay. Such claims must be filed with the Commanding Officer, Navy Finance Center (Code CZ), Anthony J. Celebrezze Federal Building, Cleveland, Ohio 44199. Claims should contain the member's name, Social Security number, present address, date of separation from the Navy, and the duty station where the claimant served during the retroactive pay period.

Further details on back pay procedures are contained in SECNAVNOTE 7220 of 3 May 1974, and ALNAV 37 (DTG 172209Z/37) of 17 June 1974.—CHINFO Newsgam, 25-74. 🍀

AVIATION PAY BILL SIGNED

President Nixon recently signed into law a bill which gives pilots and flight officers a raise in flight pay during their most active years of flying. The bill is expected to encourage experienced young aviators to remain in the Service.

Aviation pay formerly began at \$100 a month for student aviators, and rose in steps to \$245 a month after 18 years. The new pay plan, which went into effect 1 June, makes aviators eligible for the \$245 after the sixth year of aviation service. Pay scales for the first six years of service are basically the same as the old rates.

The bill also sets certain requirements that pilots and flight officers must meet to receive continuous aviation pay. At the end of 12 years of aviation service, pilots and flight officers must have had at least six years of operational flying (including flight training) to qualify for aviation career incentive pay (ACIP) for six more years, regardless of assignment. At the end of 18 years of aviation service, nine years of operational flying will be required for ACIP through the 22nd year. Eleven years of operational flying at the end of 18 years of aviation service will qualify an individual to receive continuous ACIP for 25 years.

Failure to meet operational flying requirements at the 12-year or 18-year points will place an aviator or aviatress in a status where he or she will receive aviation pay only when performing operational or proficiency flying duties.

A "save pay" provision will allow all aviation personnel to receive three years of aviation pay at the new rates, regardless of the amount of past operational flying or current assignment. This includes personnel with over 25 years of service.—CHINFO Newsgram, 22-74. 🍀

NAVY-SPONSORED MEDICAL RESIDENCIES

Over 200 medical residency training positions will be available beginning in the summer of 1975. All interested medical officers, including incumbent interns, will be competing for these positions. However, most of these positions will not be available to medical students who are competing for entry under the new American Medical Association terminology which eliminated the freestanding internship.

The following specialties will probably afford the best opportunities for selection:

SPECIALTY

ESTIMATED POSITIONS AVAILABLE (for beginning resident training)

Family Practice	27 (at both 1st- and 2nd-year level)
Pathology	10 (at 1st-year level)
Anesthesiology	22
Pediatrics	18
Psychiatry	11
Aerospace Medicine	6
Radiology	17
Occupational/Preventive Medicine	2

Training opportunities in the following specialties are extremely competitive:

SPECIALTY

ESTIMATED POSITIONS AVAILABLE

Dermatology	9
Internal Medicine	36
Neurology	3
Ob/Gyn	18
Ophthalmology	10
Orthopedics	14
Otolaryngology	8
Surgery	16
Urology	7

Historically, there has always been a large number of applicants for the limited number of positions available for training in these specialties.

All interested medical officers who desire residency training should submit their applications and all supporting documents to BUMED (Code 316) without delay. Applications must be received as close to 15 Aug 1974 as possible.

Applications will be considered at the Specialty Advisory Committee meeting to be held in Washington, D.C., on 16 Sep 1974. Notification of selection will be made in early October.—BUMED, Code 316. 🍀

NAVAL RESERVE RETIREMENT-POINT CREDIT FOR PROFESSIONAL MEETINGS

The earning and awarding of Reserve retirements points for attendance at professional meetings is authorized by Title 10, U.S. Code. Both the provisions of law and Department of Defense (DOD) directives form

the basis of the policy established by the Chief of Naval Personnel for dealing with point credit. BUPERS Manual 6610260 is taken almost verbatim from DOD directives.

To satisfy the requirements established for authorizing retirement-point credit, the following criteria are used:

- *The meeting agenda or similar publication must be included with the request.* The intent of this requirement is to provide a means by which the Reserve program sponsor may ascertain that the subject material of the meeting will actually enhance the Reservist's mobilization potential. Attendance must be primarily in the best interests of the Navy, regardless of how valuable such attendance would be to the individual. Attendance must reasonably require an expenditure of time and effort beyond that required of the Reservist's civilian profession or occupation. Where meetings will include several sessions on different subjects, it is desirable that those sessions considered to be of military value be designated. The agenda is also used to establish the minimum time requirement, i.e., two hours per day. (It is not unusual for the first day of a three-day convention to be devoted exclusively to registration and/or reception.) Attendance at approved professional meetings is exclusive and independent of program drill attendance requirements, and may not be construed as constituting a makeup drill.

- *The request must be submitted in advance.* Other service regulations require submission of the request at least 30 days in advance of the meeting date. However, it is recognized that circumstances beyond the control of the Reservist or program sponsor may preclude such a lead time. The request must therefore be submitted in sufficient time to reasonably allow normal administrative processing prior to the meeting date. A request with a lead time of as little as two weeks is considered acceptable. However, in no instance will retirement-point credit be authorized for a meeting accomplished prior to the date of the request.

- *Retirement-point credit will not be granted for attendance at privately-sponsored courses of instruction or seminars of long duration.* Normally, any assembly that is clearly a formal course of instruction, or a seminar that lasts longer than five days is considered beyond the intent of the basic instructions, and retirement-point credit will not be authorized.

- *The Reservist's participation must be without remuneration.* Authorization of retirement-point credit for attendance at professional meetings shall in no way be construed as authorization for drill pay; participation is strictly on a nonpay basis. Also, any Reservist

employed by the Federal Government is prohibited from receiving Naval Reserve retirement-point credit for a meeting attended, or actions performed as a part of, or in relation to his role as a Federal employee. A Naval Reservist may not perform any category of Naval Reserve training in the same billet, nor in the same office or bureau in which he is employed as a civilian; nor can such training be a continuation of his civilian function in another location. Performance of any category of training in conjunction, or concurrently with the performance of any assignment by an agency of the Government is not authorized.

These restrictions are necessitated by laws governing dual compensation. Since retirement-point credit forms the basis for determining the amount of retired pay a Reservist will receive, it is in fact compensation. The same action cannot be used to build a retirement annuity in both Civil Service and Naval Reserve.—BU-MED, Code 36.☛

SER* AFFECTS NAVY MEDICAL FACILITIES

The following Navy medical facilities are being disestablished or reduced as part of an overall effort to realign the Shore Establishment commensurate with programmed reductions of operating units of the Fleet:

NAV HOSP PORTSMOUTH, NH.

Nav Hosp Portsmouth, NH, will continue to provide both inpatient and outpatient care until US Air Force Hospital, Pease Air Force Base, NH, opens sometime between Aug and Oct 1974. Although Nav Hosp Portsmouth will be disestablished and inpatient care discontinued, the facility will continue to function as a dispensary serving both military and civilian personnel at the Naval Shipyard in Portsmouth. Outpatient care for dependents of active-duty personnel, and for retired personnel and their dependents, will be provided in the dispensary at USAF Hospital Pease.

Unless there are unusual increases in the number of active-duty military personnel in the area, USAF Hosp Pease and the Navy Dispensary should be able to provide most of the required medical services.

NAV HOSP CHELSEA, MASS.

This hospital discontinued all patient care on 28 Jun 1974, and is scheduled to be disestablished by Dec

*Shore Establishment Realignment

1974. Patients may seek medical care at the branch dispensary in South Weymouth; at NAVREGMEDCEN Newport, RI; or at Army or Air Force medical facilities in the area. Patients who do not wish to travel may avail themselves of care under CHAMPUS.

NAVREGMEDCEN NEWPORT, RI.

Nav Hosp Newport

Nav Hosp Quonset Point, RI.

Branch Dispensary, Davisville, RI.

The health-care functions of NAVREGMEDCEN Newport were affected in June by a reduction in the staff of Nav Hosp Newport, and by the disestablishment of Nav Hosp Quonset Point. Branch Dispensary Davisville will be discontinued in Dec 1974.

Patients will be provided medical services at Nav Hosp Newport, which is planned to continue operation as a general hospital with all the usual specialty coverage.

NAV HOSP ST. ALBANS, NY.

On 14 Mar 1974, the Navy authorized the Veterans Administration to occupy Nav Hosp St. Albans, pending disposition of the land and buildings. The Navy will operate a small outpatient clinic in the emergency room of the VA Hospital for the care of dependents of active-duty and retired personnel in the area, until the VA is able to provide services to these beneficiaries. This clinic is considered an annex of the branch dispensary of NAVREGMEDCEN Philadelphia, Pa.

NAVREGMEDCEN LONG BEACH, CALIF.

Nav Hosp in USS Repose

NAVREGMEDCEN Long Beach was reduced in March by the termination of all patient-care functions in the hospital in the USS *Repose*.

NAVREGMEDCEN OAKLAND, CALIF.

Branch Dispensary, Naval Weapons Station, Concord, Calif.

Branch Dispensary, Naval Supply Center, Oakland

Branch Dispensary, Naval Shipyard, Hunters Point, Calif.

NAVREGMEDCEN Oakland will be reduced by the closure of the branch dispensary at the Naval Shipyard, Hunters Point, and by reduction in the levels of care at the Naval Weapons Stations, Concord, and the Naval Supply Center, Oakland.

The Navy will continue to operate industrial health facilities for active-duty and civilian personnel at the

Naval Weapons Station, Concord; and at the Naval Supply Center, Oakland. Civilians will eventually be hired at these locations to provide the industrial health care required by the Occupational Safety and Health Act of 1973.

NAVREGMEDCEN SAN DIEGO, CALIF.

Branch Dispensary, Fleet Antisubmarine Warfare Training Center, San Diego, Calif.

Branch Dispensary, Naval Supply Center, San Diego, Calif.

Branch Dispensary, Naval Air Station, Imperial Beach, Calif.

NAVREGMEDCEN San Diego will be reduced by the closure of branch dispensaries at the Fleet Antisubmarine Warfare Training Center and the Naval Supply Center. The training center will be provided service by an independent duty hospital corpsman and a part-time Navy medical officer, five days a week. Civilian medical personnel will provide industrial health services to the supply center.

The branch dispensary at Naval Air Station, Imperial Beach, Calif., will remain open until the station is completely phased out of routine operations, probably sometime in 1975.

NAVREGMEDCEN JACKSONVILLE, FLA.

Branch Dispensary, Naval Air Technical Training Center, Jacksonville, Fla.

Branch Dispensary, Marine Corps Supply Center, Albany, Ga.

NAVREGMEDCEN Jacksonville will be reduced slightly by the closure of the Naval Air Technical Training Center Branch Dispensary.

The medical center will be increased by the addition of a branch dispensary at the Marine Corps Supply Center, Albany, Ga. This branch dispensary formerly served Naval Air Station, Albany, whose functions were transferred to other naval air activities.

NAV HOSP ANNAPOLIS, MD.

Branch Dispensary, Naval Station, Annapolis, Md.

The branch dispensary of Naval Station, Annapolis, closed in May 1974. Medical care is now provided by Nav Hosp Annapolis.

NAVREGMEDCEN PHILADELPHIA, PA.

Branch Dispensary, Naval Shipyard, Philadelphia, Pa.

NAVREGMEDCEN Philadelphia is to be reduced slightly by the discontinuation of military outpatient

services in the branch dispensary at the Naval Shipyard, Philadelphia. With the exception of the senior medical officer, all military medical personnel serving at this dispensary were relocated prior to Jul 1974.

The function of industrial health will be performed by civilian personnel. Some of these civilians are already on the rolls; others must be hired.

NAVREGMEDCEN PORTSMOUTH, VA.

Branch Dispensary, Fleet Combat Direction Systems Training Center, Dam Neck, Va.

Branch Dispensary, Armed Forces Staff College, Norfolk, Va.

Branch Dispensary, Flag Administrative Unit, CINCLANTFLT, Norfolk, Va.

NAVREGMEDCEN Portsmouth, Va., is being reduced by the closure of branch dispensaries at the Fleet Combat Direction Systems Training Center, Dam Neck; and the Armed Forces Staff College, Norfolk; and by the reduction of the Flag Administrative Unit, CINCLANTFLT, Norfolk, Va.

Present plans call for a screening sick call to be provided at the Fleet Combat Direction Systems Training Center by independent duty corpsmen. This sick call will be an annex function of the branch dispensary at Naval Air Station, Oceana. Medical services for students at the Armed Forces Staff College will be provided by the branch dispensary at the neighboring Flag Administrative Unit, CINCLANTFLT.

NAV HOSP QUANTICO, VA.

Branch Dispensary, Marine Corps Development and Education Center, Quantico, Va.

Two small dispensaries will be consolidated into the main dispensary at Marine Corps Development and Education Center, Quantico. Nav Hosp Quantico will continue to care for personnel at the Basic School, the Marine Corps Air Station, and the Officers Candidate School.

Despite these closures and reductions, all Navy health-care beneficiaries will be provided as much medical attention as possible without endangering the Medical Department's primary mission of providing health care to active-duty personnel.—BUMED, Code 4. 🐼

NAVY OPENS NEW HOSPITALS

If you have \$17-million to invest in medical facilities, you couldn't do much better than the two sparkling new hospitals opened by the Navy Medical Department within the past nine months.

Nav Hosp Roosevelt Roads, Ceiba, Puerto Rico, began patient care in its new 120-bed general medical care facility on 19 Nov 1973. The \$7.66-million hospital contains 125,000 square feet of space in a three-floor, three-wing, modern design. It is staffed by 225 military physicians and paramedical personnel, and has a civilian staff of 91 nurses, technicians, and administrative personnel.

CAPT D.R. Buechel, MC, USN is commanding officer of the new facility. He directs the naval medical operations of the hospital, as well as the medical care provided at nearby Naval Communications Stations and at the Roosevelt Roads Naval Station West Annex, Aguadilla (formerly Ramey Air Force Base).

Prime contractor for this project, which included a 110-man bachelor enlisted quarters, was Francisco Levy Hijo, Inc., of San Juan, Puerto Rico.

The new hospital replaces the old 70-bed medical facility at Roosevelt Roads, and fills a void in military care in Puerto Rico created by the closure of Rodriguez Army General Hospital in May 1970.

The new Nav Hosp Corpus Christi, Tex., was dedicated 23 Mar 1974. Guest speaker at the dedication was the Honorable John Young, Congressman from the 14th Congressional District of Texas, who called the hospital a monument to "peace and justice." The dedication was also attended by VADM Donald L. Custis, MC, USN, Navy Surgeon General; RADM James Ferris, USN, chief of Naval Air Training; and CAPT Eugene L. Pickett, USN, commanding officer of the Southern Division, Naval Facilities Engineering Command, Charleston, SC. Hospital commanding officer CAPT J.E. Turner, MC, USN delivered the welcoming remarks.

The \$9.4-million, six-story, 195-bed medical facility rises from a landscaped 10-foot-high berm. It contains one of three aviation physical-training units in the Nation, with a specialized suite for high- and low-pressure suits, night vision, and lecture and training rooms.

Located on the upper level of a two-story base, the outpatient clinics provide the capacity for handling 10,000 visits per month. The spaces are clustered around a central waiting area and include a dental clinic, radiology suite, laboratory unit, and sick call clinic.

Hospital services are located on the lower level of the base, recessed into the berm.

Designed to separate visitors, staff, outpatients, and emergency pedestrian traffic, a four-story tower rises above the base. The lowest level of the tower provides for administrative and patient welfare functions, a chapel, and the patient library. The next floor is occupied by the surgery and obstetrics departments. Included in the surgical suite are four operating rooms,



FILLS A VOID.—The new naval hospital at Roosevelt Roads, Ceiba, Puerto Rico, opened on 19 Nov 1973. It fills a void in military medical care created by the closure of a nearby Army hospital in May 1970. (Photo by PH1 J.E. Hudson, USN).

a recovery room, and an intensive-care unit with coronary-care capability. The obstetric suite contains complete labor and delivery facilities, full-term and premature nurseries, and an obstetric nursing unit.

Major nursing units are located on the upper two levels of the tower. Nurses' stations are placed adjacent to the elevator lobby, and situated close by are the patients requiring the greatest care.

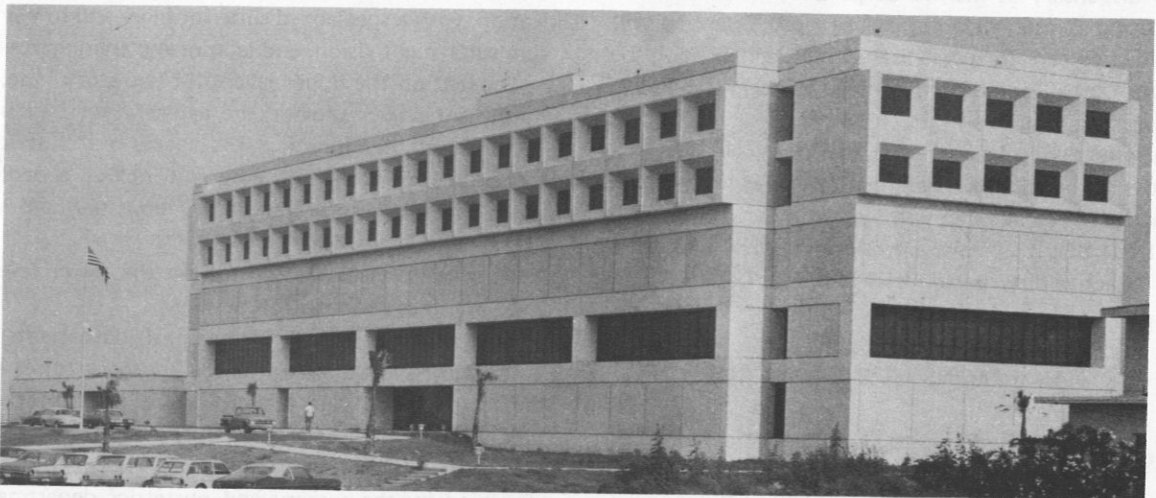
The top level also contains medical and neuropsychiatric nursing units, with a pediatric nursing unit isolated from the rest. Surgical nursing units are located directly above the surgical suite.

A "spine" of inpatient units, used for maximum supervision of obstetric and pediatric patients, rises along the south side of the tower on the first two levels. The top two levels of the spine are used for mechanical equipment, eliminating the need for a mechanical floor.

Most patient rooms contain one or two beds; each room has a private bath.

Many modern features have been included in the design of the 265,000-sq. ft. facility. A central oxygen and vacuum system is accessible to each bed. An automatic air conditioning and heating system insures a comfortable environment throughout the hospital. Electrical service to support all critical functions is backed up by an emergency generator, and there is an automatic smoke, heat, and fire-detection system. A voice-communication system connects each patient to the nursing station electronically, and also provides for patient control of a color-television set. A modern centralized dictating system facilitates transcribing of patient data for medical records.

Nav Hosp Corpus Christi was designed by Welton Beckett and Associates of Houston. Contractor for the hospital was Burnett Construction Co. of Corpus Christi.

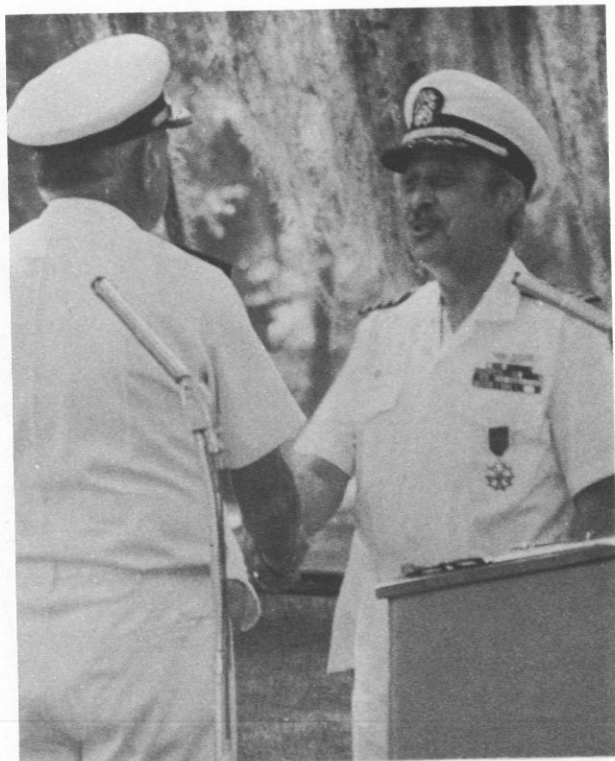


A TEXAS BIGGIN.—This new \$9.4-million naval hospital at Corpus Christi, Tex., was dedicated 23 Mar 1974. The Hon. John Young, guest speaker at the dedication, called the hospital a monument to peace and justice.

LEGION OF MERIT TO CAPT MCDONOUGH

CAPT Robert C. McDonough, MC, USN (now retired) has been awarded the Legion of Merit for outstanding services as commanding officer of the Naval Aerospace Medical Institute, Pensacola, Fla., from Jun 1972 to Jun 1974. Presentation of the award was made by RADM Oscar Gray, Jr., commanding officer of the Naval Aerospace and Regional Medical Center, in ceremonies marking CAPT McDonough's retirement on 25 Jun. In the same ceremonies, CAPT Henry S. Trostle, MC, USN relieved CAPT McDonough as commanding officer of the Institute.

The citation accompanying the award noted that CAPT McDonough used "the manpower of the aviation medical community to maximum advantage during a period of diminishing resources." He was also cited for helping to organize a new program of examination, evaluation, and follow-up procedures for repatriated prisoners of war. CAPT McDonough also helped improve the morale and decrease the number of dropouts among aviation officer candidates by establishing a program of medical evaluation for them, the citation noted.



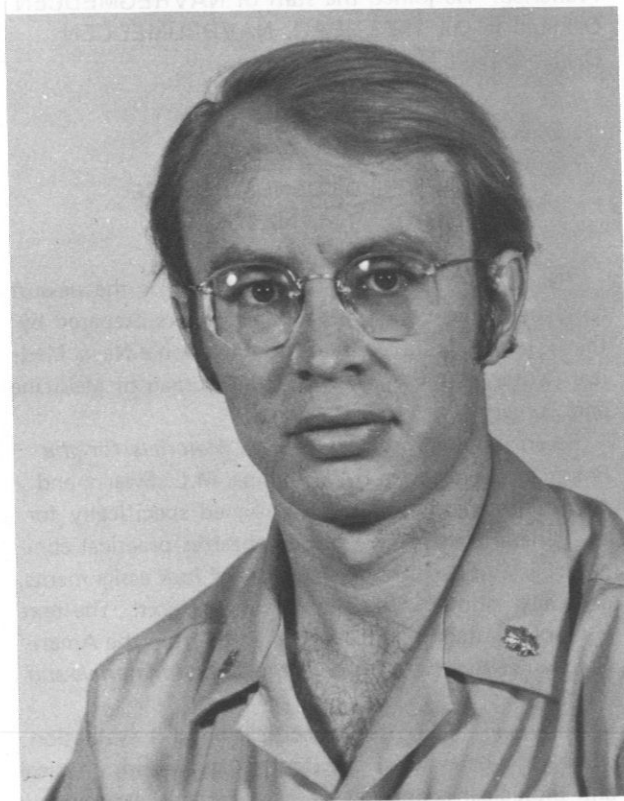
SHORT-TIMER.—Minutes before his retirement from active duty, CAPT Robert C. McDonough, MC, USN (right) receives the Legion of Merit medal in recognition of his outstanding service as commanding officer of the Naval Aerospace Medical Institute, Pensacola. Presenting the award is RADM Oscar Gray, Jr., commanding officer of Naval Aerospace and Regional Medical Center. (Photo by M. Fouchia).

After his retirement from active duty, CAPT McDonough began a new career with a pharmaceutical firm in Washington.

During the ceremonies, RADM Gray explained that on 1 Jul the Institute would be organizationally placed under the new Health Sciences Education and Training Command (HSETC) headquartered at NNMCC, Bethesda, Md. The Naval Aerospace Medical Research Laboratory will become an element of the new Navy Medical Research and Development Command (NMRDC). Both Pensacola facilities will continue to be coordinated by the Naval Aerospace and Regional Medical Center in Pensacola, RADM Gray commented.—PAO, Naval Aerospace and Regional Medical Center, Pensacola, Fla. 🇺🇸

LCDR SZAL HONORED FOR CIP STUDY

LCDR Gregory J. Szal, MC, USNR, an ENT resident at NAVREGMEDCEN Oakland, Calif., has been awarded first prize in the 1974 Benjamin Schuster Award Competition of the American Academy of Facial Plastic and



RESEARCH AWARD.—LCDR Gregory J. Szal, MC, USNR has received the Benjamin Schuster Award from the American Academy of Facial Plastic and Reconstructive Surgery, Inc. The award is presented annually for the best paper submitted by a resident in otolaryngology.

Reconstructive Surgery, Inc. Dr. Szal read his award-winning paper, "Surgical Repair of Facial Nerve Branches," at the final session of the Academy's annual meeting, held this year in April at Palm Beach, Fla. Dr. Szal's research work was supported by the Navy Clinical Investigation Program (CIP), CI Study 3-48-189.

Under the direction of principal investigator CAPT Tom F. Miller, MC, USN, Dr. Szal analyzed the results of different sheathing and suturing techniques used in the repair of rabbit facial nerves. He found that both vein and silastic sheaths caused decreased axonal regrowth, and that silastic sheaths caused nerve shrinkage. When three stitches were used, decreased axonal regrowth occurred and neuromas formed in the gaps between the sutures. A continuous stitch produced the poorest results. Seven stitches of very small suture (10-0 nylon on an St-6 needle), with no sheathing whatsoever, provided the best results in terms of: axonal regrowth, prevention of neuromas, and return of function in 1.25-mm-diameter branches of rabbit facial nerves.

LCDR Szal received his BA and MD degrees from Johns Hopkins University. From 1970 to 1972, he underwent internship and residency training in general surgery at US Public Health Service Hospital, San Francisco. He joined the staff of NAVREGMEDCEN Oakland in Jul 1972.—PAO, NAVREGMEDCEN Oakland, Calif. 🍀

CORRESPONDENCE COURSE IN DENTAL MATERIALS

"Dental Materials," NAVTRA 10408 is the newest correspondence course for dental officers prepared by the Naval Graduate Dental School, National Naval Medical Center, Bethesda, Md., for the Bureau of Medicine and Surgery.

Based on the commercial text, *Materials for the Practicing Dentist* by R.W. Phillips, M.L. Swartz and R.D. Norman, the course is designed specifically for the general practitioner and emphasizes practical clinical aspects of dentistry. It consists of four assignments, generally following the chapters in the text. The text is supplemented by material extracted from the American Dental Association's *Guide to Dental Materials and Devices*.

The course includes: specification and evaluation programs of the American Dental Association; physical and biological properties of dental materials; cavity-lining agents and intermediary bases; restorative materials; impression, cast, and denture-base materials; and dental cements.—PAO, NNMC, Bethesda, Md. 🍀

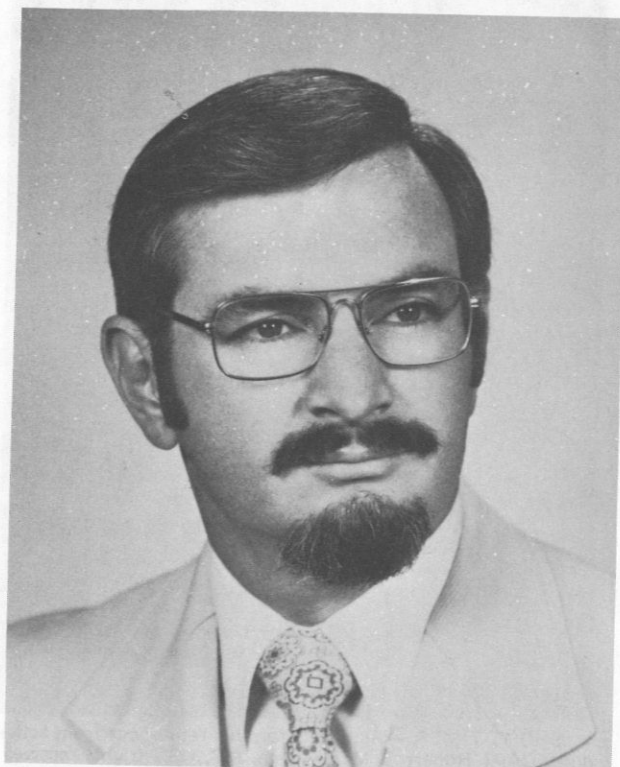
LT J.P. SMITH NAMED PRESIDENT OF MEDICAL TECHNOLOGY SOCIETY

LT John P. Smith, MSC, USNR has been installed as president of the American Society for Medical Technology (ASMT), a Houston-based professional organization.

A certified microbiologist, LT Smith is supervisor of the microbiology section and education coordinator of the Schools of Laboratory Science, Wesley Medical Center, Wichita, Kans. He has been an active member of the ASMT for several years, serving on the Board of Directors, the Research Committee, and various task forces. He has also chaired the ad hoc committee of the Immunology Section and the nominations committee of the Microbiology Section of the ASMT Scientific Assembly.

Equally active in the Kansas Society for Medical Technology, LT Smith has served that organization as president, member of the Board of Directors, and state delegate to the national ASMT annual meetings.

LT Smith received his BA degree in 1962 from Kansas State Teachers College, Emporia. He is a member of the Naval Air Reserve Division at Olathe, Kans.—ASMT, Bellaire, Tex.



NAMED PRESIDENT OF ASMT.—LT John P. Smith, MSC, USNR, a member of the Naval Air Reserve Division at Olathe, Kans., has been installed as president of the American Society for Medical Technology. 🍀

NAVREGMEDCEN SAN DIEGO HOSTS CANCER CONFERENCE

For the 17th consecutive year the Naval Regional Medical Center San Diego, Calif., hosted a Cancer Conference on 9 April. Traditionally sponsored by NAVREGMEDCEN San Diego, the San Diego Unit of the American Cancer Society, the San Diego County Medical Society and the San Diego County Dental Society, this year the meeting was enriched by the participation of faculty members from the new medical and dental schools in Tijuana, Mexico. Three guest speakers from Mexico added a welcome international perspective.

The purpose of the annual conference is to involve and inform the professional community in current aspects of cancer diagnosis, therapy, rehabilitation, clinical management and psychological complications. The sponsoring bodies plan the meeting so as to interest a diverse group of specialists and generalists in medicine and dentistry. The program committee this year succeeded in producing an informative session that was sufficiently technical to be worthwhile, without sacrifice in universal appeal and interest.

RADM H.G. Stoecklein, MC, USN (now retired), CO of the host facility, was general chairman of the meeting. Assistant chairman was CAPT J.N. Rizzi, MC, USN. Approximately 400 attendees were welcomed by RADM Stoecklein at the formal opening of the meeting.

The general session was presided over by Francis Howell, DDS, and included papers presented by Pedro Cervantes, MD, dean of the School of Medicine, University of Baja, Lower Calif., and Enrique Martin Del Campo, DDS, dean of the School of Dentistry, University of Baja, Lower Calif. Eduardo S. Murphy, MD, former chief of the Department of Pathology at the National Institute of Cancer of Mexico, presented a dissertation on pseudolymphomas and their significance in the diagnosis and treatment of malignant lymphomas.

Smaller subgroups were formed following the general session, to consider specific cancer problems, such as head and neck cancer viewed by the family physician and the dentist, and rehabilitation of the cancer patient. CAPT Eugene Lang, MC, USN, head of the Hematology Division and chief of the Clinical Investigation Center at NAVREGMEDCEN San Diego addressed the complications of chemotherapy, and his presentation was well received. Family physicians and dentists were particularly interested in a practical treatment of head and neck cancer.

In the evening session, following a social hour and dinner, John H. Moxley, MD, vice chancellor for health services and dean of the School of Medicine, University of California, San Diego, delivered a spirited address on the topic "Medical education — where it has been,

where it is, and where it is going." Dr. Moxley discussed current and potential problems in a national health-care-delivery system; he considered a number of proposed options and solutions, emphasizing that medical education as an institution may be required to transform its methods and priorities in order to meet the needs of future health-care delivery. The talk was well received, and generated active audience participation.—CAPT John N. Rizzi, MC, USN, Department of Obstetrics-Gynecology, NAVREGMEDCEN San Diego, Calif.



MEXICO WELL REPRESENTED.—Guest speakers from Mexico added an international flavor to the 17th Annual Cancer Conference hosted by NAVREGMEDCEN San Diego. Pedro Cervantes, MD (left), dean of the School of Medicine, University of Baja, Lower Calif.; and Eduardo Murphy, MD (right), former chief of the Department of Pathology, National Institute of Cancer of Mexico, joined Enrique Martin Del Campo, DDS, dean of the School of Dentistry, University of Baja, Lower Calif., as participants in the general session.



GUEST SPEAKER.—John H. Moxley III, MD (left), vice chancellor for health services and dean of the School of Medicine, University of California, San Diego, was guest speaker at the conference dinner. Here, before his speech, he enjoys a conversation with CAPT R.F. Milnes, MC, USN (center), director of professional services at NAVREGMEDCEN San Diego, and Mrs. Milnes (right).



SOCIAL HOUR.—RADM H.G. Stoecklein, MC, USN (second from right), then CO, NAVREGMEDCEN San Diego, chats with guests before dinner. With him, from left to right, are: Mrs. Stoecklein; Matthew Gleason, MD, president of the San Diego Medical Society; and William Herrick, MD.



DENTISTS CONFER.—CAPT David Firtell, DC, USN (center), chairman of the Dental Service at NAVREGMEDCEN San Diego, compares notes on the cancer conference with LCDR John Van Belois, DC, USN (left) and CDR John Foley, DC, USN (right), during the social hour.

SURGEON GENERAL'S CONFERENCE

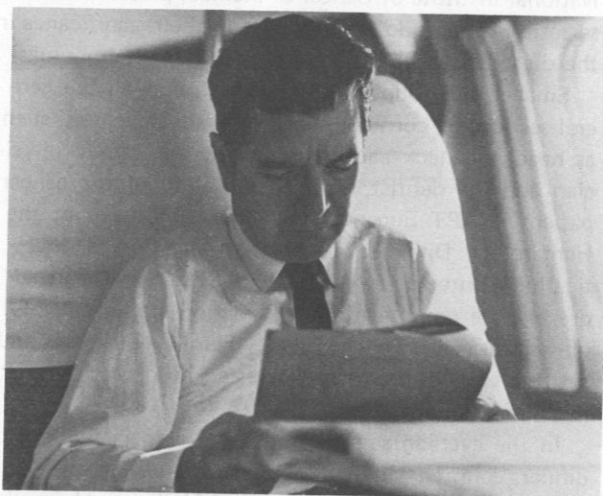
Around 200 selected attendees are expected to converge on the National Naval Medical Center (NNMC), Bethesda, Md., for the Surgeon General's Biennial Conference to be held on 24-26 Sep 1974.

A busy agenda is planned for the conferees who represent senior Medical, Dental, Nurse, and Medical Service Corps officers at the managerial level. In addition to scheduled addresses which will be delivered by top-echelon DOD and military officials, tentatively planned workshops for subgroups will be conducted as follows: eight Medical Corps subgroups of 11-12 members each, three Dental Corps workshops of 10 members each, three Nurse Corps workshops of 10 members each,

and eight Medical Service Corps workshops of 11-12 members each. In some instances, the workshops will include members of the other Corps as participants, to provide a multidisciplinary perspective. The chairman assigned to each workshop group will be assisted by designated advisors, providing direction to the group and preparing a report of the discussion.

The Surgeon General looks forward to a lively and energetic session, from which should flow greater understanding and coordination within the Medical Department. There are at present numerous dynamic and unprecedented developments which impact on our immediate future. While some social events will be included, the conferees should come prepared to work. The pace will be intense and demanding, and as functioning leaders of the Medical Department, participants will be expected to address themselves with zeal to the formidable problems confronting us as a complex health-care organization.

Chairman of the Surgeon General's Conference Committee for planning is RADM E.J. Rupnik, MC, USN, assistant chief for personnel and professional operations, Bureau of Medicine and Surgery (Code 3). Co-chairman is CAPT J.W. Cox, MC, USN, head of the newly established Health Sciences Education and Training Command (HSETC). Other committee members include: RADM Alene B. Duerk, NC, USN, director of the Nursing Division, BUMED Code 32; RADM R.G. Williams, Jr., MC, USN, CO, NNMC, Bethesda; RADM R.W. Elliott, Jr., DC, USN, assistant chief for dentistry and chief of the Dental Division, BUMED Code 6; RADM-select D.E. Brown, MC, USN, Deputy CO, NNMC, Bethesda; CAPT A.J. Schwab, MSC, USN, director, Medical Service Corps Division, BUMED Code 35;



ABLE PHYSICIAN-ADMINISTRATOR.—RADM E.J. Rupnik, MC, USN, assistant chief for personnel and professional operations, BUMED Code 3, is chairman of the planning committee for the 1974 Surgeon General's Conference.



PLANNING AWAY.—Contemplating heaps of coordination and logistics are (from left to right): CDR J.C. Thompson, MSC, USN; RADM-select D.E. Brown, MC, USN; CAPT A.J. Schwab, MSC, USN; CAPT W.J. Green, Jr., MSC, USN; and CDR W.J. Auton, MSC, USN. (Photo by *U.S. Navy Medicine*)



HEADY STUFF, THIS.—Pondering the imponderables are some of the members of the Surgeon General's Conference Committee (from left to right): Mr. Ernst Lundell; RADM Alene B. Duerk, NC, USN; RADM R.G. Williams, Jr., MC, USN; CDR J.C. Thompson, MSC, USN; RADM-select D.E. Brown, MC, USN; CAPT A.J. Schwab, MSC, USN; CAPT W.J. Green, Jr., MSC, USN; and CDR W.J. Auton, MSC, USN. (Photo by *U.S. Navy Medicine*)

CAPT W.J. Green, Jr., MSC, USN, CO, Naval School of Health Care Administration, NNMHC, Bethesda; CDR J.C. Thompson, MSC, USN, executive assistant to the Deputy Surgeon General; CAPT M.T. Lynch, MC, USN; CDR R.E. Erwin, MSC, USN; Mr. Ernst Lundell, the BUMED Comptroller; and Mr. Kenneth Chandler, head, Printing Branch, BUMED. CDR Thompson has been designated as Coordinator for the Conference, CAPT Green has the formidable task of logistics coordinator, and CDR W.J. Auton, MSC, USN is the man to whom checks should be made payable for food and social costs.

Conferees have been individually advised by mail to secure the necessary reservations and tickets. With accommodations short and time at a premium, all such amenities should have been prearranged by now.

Mrs. Joeann Jacoby is scheduling daytime tours and activities for the wives who will accompany their husbands, and is in contact with those planning to attend.

Come in service dress blue uniform, with your minds receptive, your hearts open, and your energy boundless. 🍀

AMSUS TO MEET IN SAN DIEGO

The 81st Annual Meeting of the Association of Military Surgeons of the United States (AMSUS) will be held in San Diego, Calif., 28-31 Oct 1974. The theme of the meeting is "Federal Medicine — Finding Better Ways to Serve."

The Honorable James R. Cowan, MD, Assistant Secretary of Defense for Health and Environment, is the keynote speaker; he will address the group on Tuesday morning, 29 Oct. That afternoon, Anthony R. Curreri, MD, president of the newly-established Uniformed Services University of the Health Sciences, will deliver the annual Sustaining Membership Lecture.

Mr. Donald G. Ogilvie, director of the Joint DOD-HEW-OMB Military Health Care Study now in progress, will discuss the study findings in a luncheon address, also on 29 Oct. This address will be of particular interest to Navy personnel, since the results of this landmark study could affect the future of every Medical Department officer.

Guest speaker at the banquet on Thursday evening, 31 Oct, will be ADM Thomas Moorer, former chairman of the Joint Chiefs of Staff.

The registration fee for the meeting is \$10. For more information write:

Association of Military Surgeons
of the United States
8502 Connecticut Avenue
Chevy Chase, Md. 20015 🍀

CONFERENCE ON MEDICAL EQUIPMENT TECHNOLOGY

The Naval Medical Materiel Support Command (NMMSC), Philadelphia, Pa., recently hosted a conference on the latest developments in medical equipment technology, maintenance, repair, and safety. Representatives from the Navy, Army, Air Force, Veterans Administration, and Defense Personnel Support Center congregated to see demonstrations of newly developed electronic test equipment and patient-monitoring systems. CAPT S.C. Pflag, MSC, USN, CO at NMMSC, Philadelphia, Pa., actively participated in the meeting.

The conference included discussions on the implementation of the Radiation Control for Health and Safety Act, the status of Federal legislation for medical devices, and medical equipment calibration. The awarding of an associate degree to graduates of the

U.S. Air Force School of Health Care Sciences and the Army Academy of Health Sciences was also discussed. LT R.J. Lindsay, head of the Equipment Support Maintenance and Repair Department at NMMSC, Philadelphia, chaired the conference.

Highlight of the conference was an address by Joel J. Noble, MD, scientific director of the Emergency Care Research Institute, Philadelphia. Dr. Noble spoke on safety and maintenance of equipment in medical-care facilities.—PAO, NMMSC, Philadelphia, Pa.



CONFERENCE TIME.—Joel J. Noble, MD (left), scientific director of the Emergency Care Research Institute, Philadelphia, discusses safety and maintenance of medical equipment at the Medical Equipment Technology Conference.

DATA SERVICES CENTER INSTALLS HIGH-SPEED COMPUTER TERMINAL

With the recent installation of a high-speed computer terminal at the Naval Medical Data Services Center (NMDSC), National Naval Medical Center, Bethesda, Md., the Navy Medical Department has acquired access to a central computer system complex which may eventually be made available to all major naval medical facilities.

The computer terminal consists of a 300-card-per-minute card reader, a 200-card-per-minute card punch, and a 400-line-per-minute line printer. Users of the terminal can communicate instantly with a bank of four UNIVAC 1108 computers located in El Segundo, Calif.

The system is based on a nationwide information network (INFONET) developed by Computer Sciences Corporation for the General Services Administration. INFONET provides to multiple users, on a time-shared basis, the sophistication and efficiency of the latest generation of computers.

The NMDSC is currently using INFONET to centrally develop and program inpatient accounting and medical supply systems. More sophisticated and efficient computer programs will be available for the production of numerous locally required reports. Local statistical and workload information will be integrated into a central data base that will be readily accessible to the NMDSC and the Bureau of Medicine and Surgery.—Notes, Naval Medical Data Services Center, No. 17, 1 May 1974.

BRINGING GIFTS TO NEWPORT



NEW GEAR AT NEWPORT.—CAPT R.J. Cales, MC, USN, CO, NAVREGMEDCEN Newport, R.I., accepts a donation of medical equipment from Mrs. Kenneth McDonald, vice-president of the Newport Medical, Dental and Medical Service Corps Wives Club. The equipment, which includes a Microfuge, hospital lights, and a wet vacuum cleaner, will be used throughout the medical center. — PAO, NAVREGMEDCEN Newport, R.I.

WELL-BABY CLINIC ON WHEELS



MOBILE CLINIC.—This converted X-ray van is now a mobile well-baby clinic, primarily for infants up to the age of two years. Members of the Pediatric Department at NAVREGMEDCEN Portsmouth, Va., use the van to provide checkups and immunizations for infants whose families cannot bring them to the regular clinic. — PAO, NAVREGMEDCEN Portsmouth, Va.

UNITED STATES NAVY MEDICINE

CORRESPONDENCE AND CONTRIBUTIONS from the field are welcomed and will be published as space permits, subject to editing and possible abridgment. All material should be submitted to the Editor, *U.S. NAVY MEDICINE*, Code 18, Bureau of Medicine and Surgery, Washington, D.C. 20372.

NOTICES should be received not later than the third day of the month preceding the desired month of publication.

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CENTENNIAL CELEBRATION.—Commemorating 100 years of naval dentistry at the U.S. Naval Academy, Annapolis, Md., in May 1973 are (left to right): VADM William P. Mack, USN, Academy superintendent; Mrs. Mack; Mrs. William A. Monroe; RADM George D. Selfridge, DC, USN, CO, Naval Graduate Dental School, Bethesda, Md.; Mrs. Chandler and RADM Alfred W. Chandler, DC, USN (Ret.), oldest past senior dental officer present; and CAPT William A. Monroe, DC, USN, senior dental officer at the Academy.—PAO, U.S. Naval Academy, Annapolis, Md.

U.S. NAVY MEDICINE